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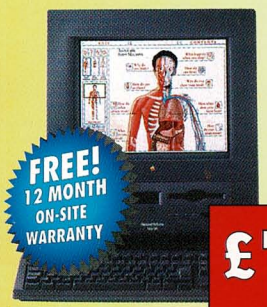

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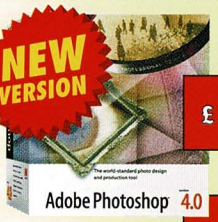

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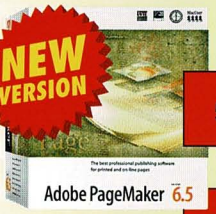

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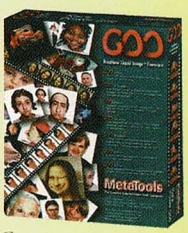

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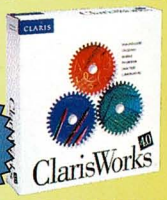

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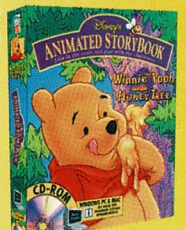

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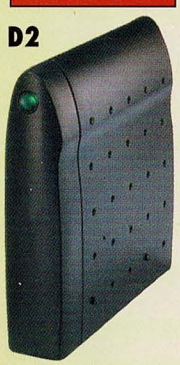

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The Finder

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Win! Win! Win!

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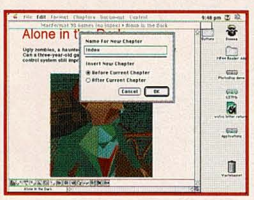

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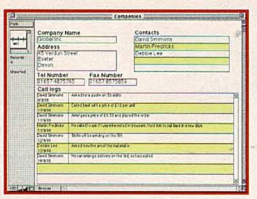

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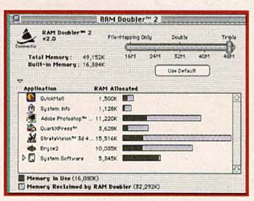

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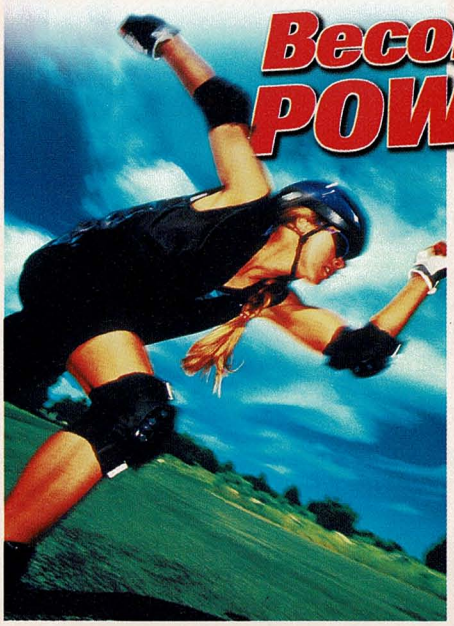

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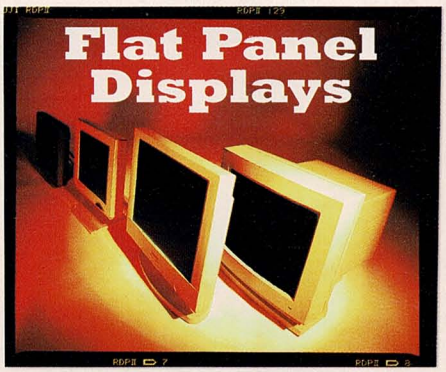

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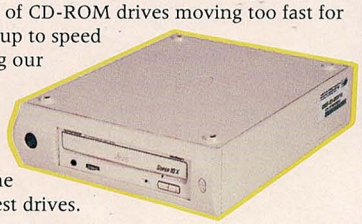
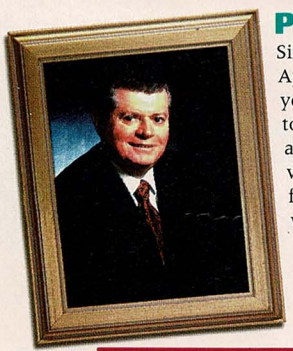


Gil Amelio



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Apple xpo 1996

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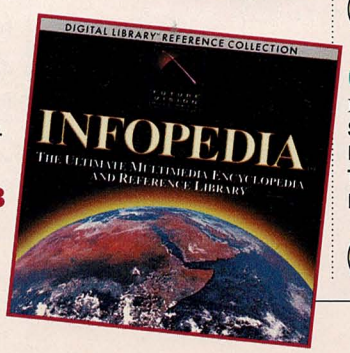

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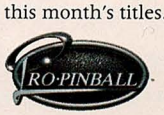

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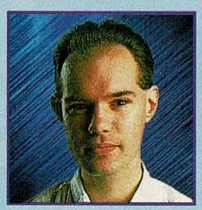
Welcome to MACFORMAT

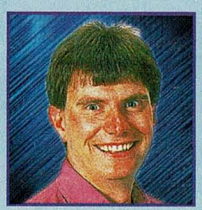
Everything you wanted to know about MACFORMAT, plus the additional features *we'd* like to see in the Mac OS...

About our writers



Richard Hill

Richard has become an information junkie since he became MACFORMAT's News Editor. But with the info overload of the Internet, he's waiting patiently for one already-announced feature of Mac OS 8. "V-Twin is sophisticated search facility, but what's really cool is the way you can condense a huge article into a brief synopsis. Ideal for news writing on the run."



Colin Dalziel

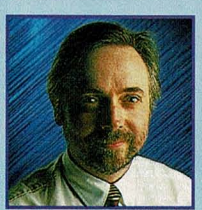
Colin Dalziel (pronounced "Dee-ell", middle name "Blud") has packed his bags and taken his Glen Campbell CD to Wolverhampton Uni (Friday afternoons will never be the same again) to take up a multimedia post, so we can't ask for his favourite time-saving tip. If you think you could fill his shoes, send us a CV, listing your favourite cheesy soundtracks.

Lindsay Bruce

Our Technical Writer wants an option to run his Mac with a skeleton operating system – not just one with Extensions switched off, but one that runs in 500K and has the minimum of features. "That way," he says, "I'd be able to squeeze every ounce of power out of my PowerMac for 3D-modelling and playing *Descent*."

Derek Smith

Perception is often stronger than reality, so our Derek keeps a Windows 95 manual by his side at all times. "When I get annoyed at my Mac's System for misbehaving, I look up a similar problem for the PC, then realise that things aren't so bad after all. All that therapy for a mere £16.99."

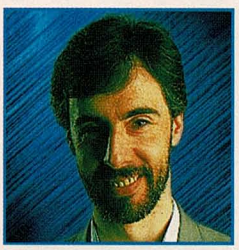


Rod Lawton

"I'd like a 3D metaphor for the Desktop," says our "productivity shareware" guru, from the seclusion of his darkened room. "Instead of double-clicking folders to open them, you should be able to drag files 'into' the screen, going through successive 'rooms' to get to the folder you want." Cool. So long as you don't get your fingers jammed in the door or something...

Ian Waugh

Our music man says he can't live without *Now Super Boomerang* at the moment, because it has much better options than the **Recent Items** folder in his **Apple** menu. What he'd really like to see, though, is resizable **Open** and **Save** boxes become a standard part of the Finder. Then he could cram in hundreds of plug-ins – and, more importantly, find them again!



Alex Summersby
Editor

Welcome again to MACFORMAT, Britain's best-selling Macintosh (and Mac-compatible!) magazine.

If you've been following any of the newspapers over the last several months, you'll know how just about everyone has been focussing on the troubles of Apple Computer Inc in the US. Well, from where I'm sitting (in Future Publishing's in-house imagesetting department, as it happens, surrounded by about a dozen Macs, which handle the film output requirements of some 45 magazines), the Macintosh is in a pretty commanding position.

Just look at the impressive range of new software we're reviewing this month – not "vapourware" but real, released products we've actually tested ourselves, from some remarkable new multimedia titles to the long-awaited *CorelDraw*. Corel is just one of the major companies that have declared their commitment to the Macintosh platform – and just wait till we can reveal details of the company's ambitious plans in the months ahead!

On the hardware side too, more and more firms are signing on – we test yet another Mac OS compatible computer this issue, and there are many more on the way.

As for Apple, the company's boss himself sets out his plan for its recovery and his vision for its future direction in this issue – read what he has to say on page 28.

On every front, the picture is one of growth and booming development. That's one reason why, this issue, MACFORMAT is inviting you to celebrate the best of the Mac by voting for the products *you* judge to be the best of the year in the first MACFORMAT Reader Awards. It's *your* chance to focus *our* attention on the very best in personal computing, so turn to page 34 and have your say!

About MACFORMAT

MACFORMAT is for you, the person who actually works at a Mac keyboard. Every issue we bring you:

- **Tips, techniques and tutorials** covering the range of Mac applications, from graphics, spreadsheets and databases to music, multimedia and games.
- **Features** about exciting Mac developments and novel uses, accompanied by software on our Cover CD-ROM and floppy disk whenever possible, so you can discover what your machine can do and try things you mightn't have tried before.
- All the latest Mac-related **news,** plus all you want to know about the wider issues, the people behind the headlines and the stories behind the stories.
- Authoritative, independent **reviews** of interesting and affordable products, with clear buying recommendations.
- **Cover Disks and CD-ROMs** with demos so you can try software for yourself before you buy, useful utilities (specially chosen to complement features in the magazine), selected shareware programs, games, readers' contributions and much more.

Whether you're a veteran or a novice, MACFORMAT will help you get more out of your Macintosh, whatever you use it for.

A word about prices...

We try to ensure that all prices quoted in editorial pages in MACFORMAT are accurate at the time of going to press, and they all *include* UK Value Added Tax at 17.5%. However, this may not necessarily be the case with prices appearing in advertisements, so we recommend that you always contact advertisers before ordering to confirm prices and availability.

- We make every effort to verify all the information we publish, but products and prices do change. We always quote list prices (RRPs), but street prices vary. Shop around, and check with the supplier before buying to make sure that the product you're considering will meet your needs. MACFORMAT cannot accept responsibility for any errors or omissions or for any losses that may arise as a result, but it is our policy to correct any errors of fact whenever we can.

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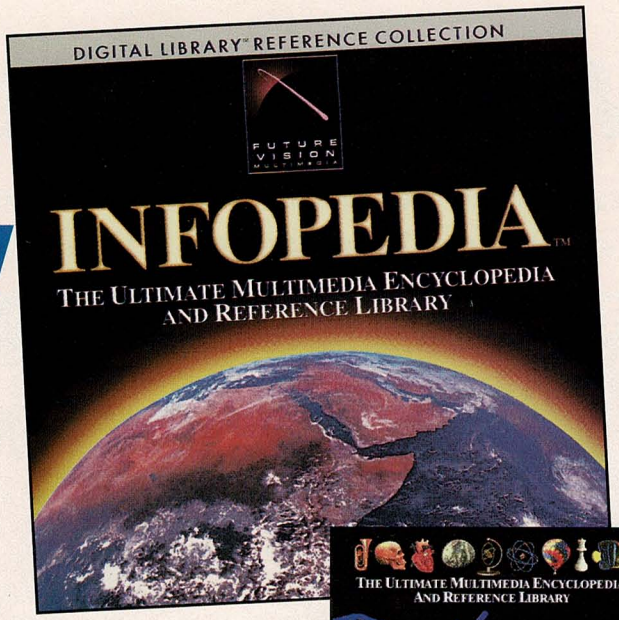
Infopedia *complete!*



Ever thought there's a gap in your knowledge? Now you can fill it with this full multimedia reference title from SoftKey, yours free on our bonus CD.

Who was the first person to fly across the Atlantic? What is the capital of Madagascar? Where would you be able to find a gopher?

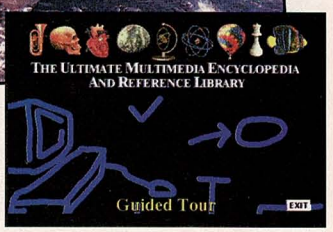
There's so many questions in the world and now we've given you all the answers! Free with this issue of MACFORMAT we're pleased to bring you the full US version of *Infopedia* – the ultimate multimedia encyclopedia and reference library.

Packed with fascinating and useful information, *Infopedia* contains eight essential works on one CD, including:

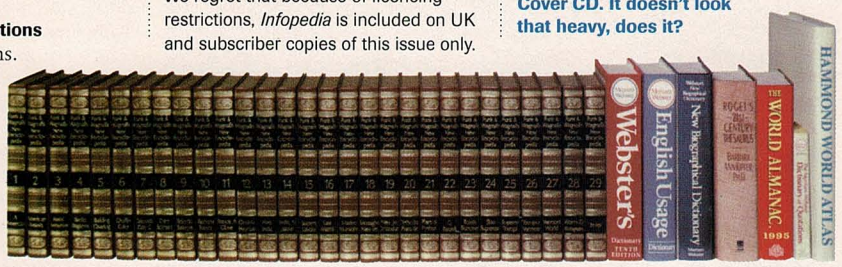
- **Funk & Wagnalls Encyclopedia**
  A complete 29-volume illustrated encyclopedia.
- **Webster's Dictionary**
  Over 20,000 definitions.
- **Webster's English Usage**
  The world's largest archive of 20th Century English usage – almost 14 million examples.
- **Webster's New Biographical Dictionary**
  Details on 30,000 people, past and present, in all fields.
- **Dictionary of Quotations**
  Over 4,000 quotations.
- **Hammond World Atlas**
  Hundreds of richly detailed relief maps.
- **Roget's Thesaurus**
  450,000 synonyms and over 1 million word choices.
- **World Almanac**
  A year in review – economics, the arts, and more.

A *complete* program, previously sold for £39.99, *Infopedia* means you'll never be short of facts again!

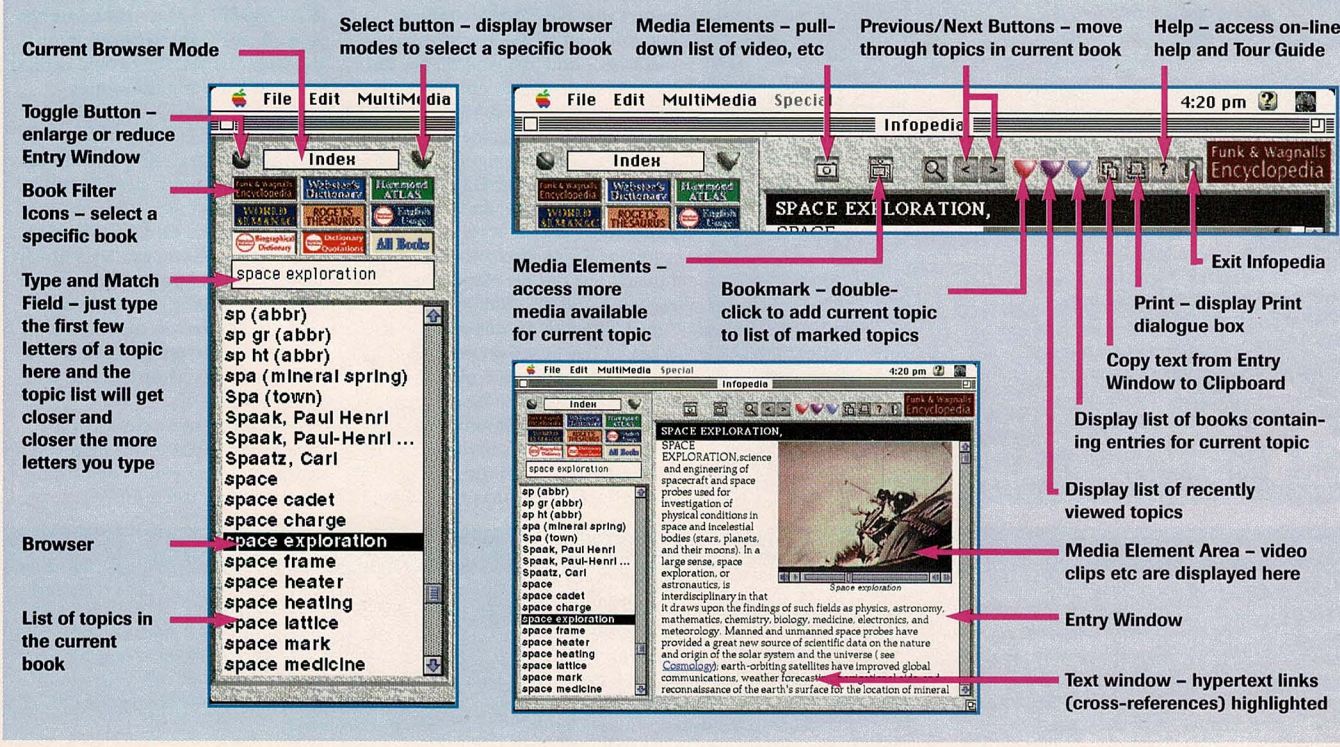
We regret that because of licencing restrictions, *Infopedia* is included on UK and subscriber copies of this issue only.



The contents of all these books – yours free on this issue's bonus Cover CD. It doesn't look that heavy, does it?



Find your way around...


Current Browser Mode
Select button – display browser modes to select a specific book
Media Elements – pull-down list of video, etc
Previous/Next Buttons – move through topics in current book
Help – access on-line help and Tour Guide
Toggle Button – enlarge or reduce Entry Window
Book Filter Icons – select a specific book
Type and Match Field – just type the first few letters of a topic here and the topic list will get closer and closer the more letters you type
Browser
List of topics in the current book
Media Elements – access more media available for current topic
Bookmark – double-click to add current topic to list of marked topics
Exit Infopedia
Print – display Print dialogue box
Copy text from Entry Window to Clipboard
Display list of books containing entries for current topic
Display list of recently viewed topics
Media Element Area – video clips etc are displayed here
Entry Window
Text window – hypertext links (cross-references) highlighted
File Edit MultiMedia
Index
space exploration
sp (abbr)
sp gr (abbr)
sp ht (abbr)
spa (mineral spring)
Spa (town)
Spaak, Paul Henri
Spaak, Paul-Henri ...
Spaatz, Carl
space
space cadet
space charge
space exploration
space frame
space heater
space heating
space lattice
space mark
space medicine
Infopedia
4:20 pm
Funk & Wagnalls Encyclopedia
SPACE EXPLORATION,
Space exploration

Special offers from SoftKey

Once you've taken a look at the fabulous *Infopedia*, you're sure to want to know more about the whole range of titles available from SoftKey.

Skilled in producing high-quality, extremely comprehensive collections of material on a range of subjects, SoftKey is bound to have another title that appeals to you. In a special MACFORMAT offer, we've got four of the most popular available at great prices.

Explorers of the New World tells you the true stories behind history's greatest explorers and gives you an insight into their perilous journeys. You can have a go at piloting Columbus's ship, or use maps, timelines and accurate video re-creations to discover the dreadful fate of Magellan, as you become one of his only surviving crew members! With a database of 60 explorers, there's enough high-seas adventure here to keep you afloat for weeks.

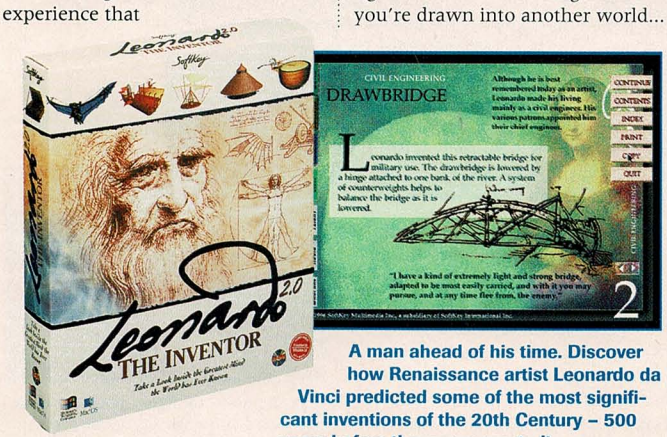
If that all sounds a bit too dangerous, how about turning to the gentler world of ***ArtRageous***, a 3D walk-through interactive experience that introduces you to the many schools of art and the artists behind them. Hundreds of paintings are used to illustrate techniques and theories and, when you think you've learnt it all, you can have a go at altering famous paintings for yourself.

One of the world's most famous artists was Leonardo da Vinci, a man also famed as perhaps the greatest inventor and visionary in history. His life and works are catalogued in ***Leonardo the Inventor***, an interactive encyclopedia of his inventions, coupled with 3D models for you to explore.

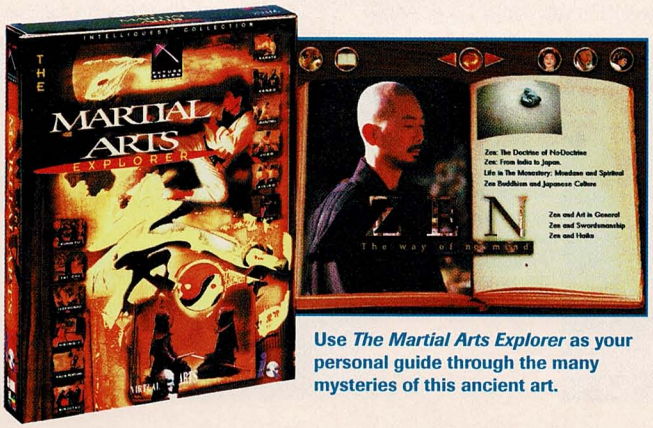
Our final trip into the art world is a different kind of art entirely – martial arts! With over 100 video clips, ***The Martial Arts Explorer*** is your personal guide as you meet 12 different martial arts masters and learn the long held secrets of art, medicine and ancient philosophies.

All these titles require a 68030 Mac, System 7.1, 8Mb of RAM, a 13-inch monitor, 256 colours and a double-speed CD-ROM drive.

To get hold of any of these superb multimedia titles at our special price, fill in the form to the right and it won't be long before you're drawn into another world...

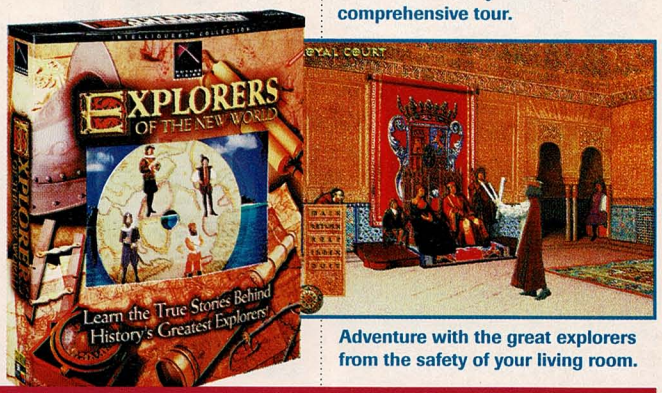


A man ahead of his time. Discover how Renaissance artist Leonardo da Vinci predicted some of the most significant inventions of the 20th Century – 500 years before they were created!



Use *The Martial Arts Explorer* as your personal guide through the many mysteries of this ancient art.

Hundreds of paintings act as the basis for the study of art in this comprehensive tour.



Adventure with the great explorers from the safety of your living room.

MACFORMAT Special Offer

Please tick the CD-ROMs you would like (at just £29.99 each):

☐ MFSK1 **Artrageous** ☐ MFSK2 **Explorers of New World**

☐ MFSK3 **Leonardo the Inventor** ☐ MFSK4 **Martial Arts Explorer**

Total due for payment (tick one only):

☐ One title: **£29.99** ☐ Two titles: **£59.98**

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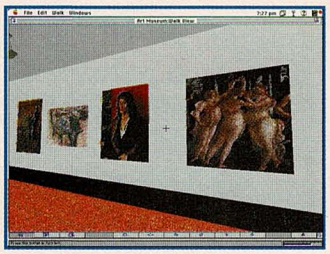
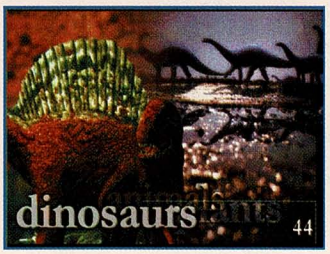
☐ Tick if you don't want to receive details of other special offers

Your order will be processed immediately, but please allow 28 days for delivery

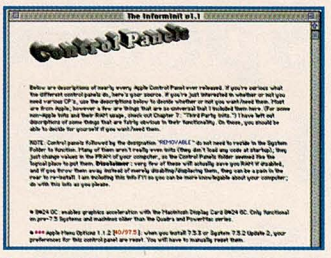
IndyCar Racing II



3D Website Builder



Planet Earth



The InformInit v1.1

Your CD-ROM

Colin Dalziel is leaving his post as CD-ROM Editor, but as his parting gift, he's given us a fabulous CD full of top-notch software. Derek Smith finds out what's in store for your Mac.

Getting started

Welcome to the MACFORMAT 44 Cover CD. Here are some tips:

- **Some of the demos on the Cover CD require installation on your hard disk – they won't run direct from the CD. Many of these programs use an installer: once you've double-clicked on it, just follow the on-screen instructions and you should be fine. Even if there's no installer, it often helps to copy demos to your hard disk – at the very least they should run faster!**

- **The icons we use on the CD folders help to give it a friendly atmosphere, but they do slow it down. Install *CDIconKiller*, which is in the Resources folder on the CD, if you want to speed things up.**

- **If you have problems quitting any of the rolling demos on the Cover CD, just press [command] Q and you should go back to the Finder. If this doesn't work, hit [command] [option] [escape] to force quit.**

- **It couldn't be easier to install System Extensions and Control Panels – just drag them over your closed System Folder and your Mac puts them in the right place for you. Then all you need to do is Restart.**

- **Look for this icon throughout the issue – it will point you towards the CD programs connected with the feature or review you're reading.**

ON THE CD

IndyCar Racing II

What is it? Playable demo
Where you'll find it: Demos folder
Mac: PowerMac only
PowerMac: any
Requires: 8Mb free RAM, System 7.1 or later, 256-colour monitor

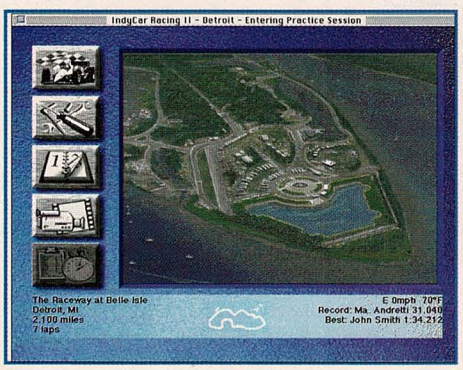
Forget the LCD-style display, this "in cockpit" camera angle gives you a good view of that gap ahead... that really very *narrow* gap.

Americans, in their eternal quest to invent sports that no-one else plays, avoid Formula One racing by staying home and playing Indy Car. But don't let this put you off. The cars look like F1 cars, they go really fast like F1 cars, and it's not good for them to hit other solid objects – just like F1 cars. In other words, a racing game is a racing game.

This is a particularly good one though, earning 94% and a Classic award back in MACFORMAT 42. To get going, copy the whole folder to your hard disk, then double-click on the game icon. You'll want to skip all that nonsense about practising and get straight into the race, so make sure **Single Race** is selected from the **Options** menu, then keep selecting **Prepare to...** from the **Race** menu until it says **Race.**

Then it's off you go... straight into a wall. Did I forget to mention the walls? Most Indy circuits have solid concrete walls around the edges and it will take you some time to learn to avoid them, but stick with it, because once you do eventually get the hang of the circuits in this demo, it's thrilling.

Just like the real thing, you can view the race from a variety of external cameras. Maybe a few dead flies would add even more to the realism.



The demo gives you a couple of winding circuits to race. In the real Indy Car world, half the circuits are simple ovals. Sounds as exciting as watching Nigel Mansell's moustache grow.

Indy Car Controls

These are the default settings for *Indy Car Racing II*, but you'll probably want to customise them by choosing Set Controls from the Options menu.

Steering left/right	Mouse
Accelerate	Mouse button
Brake	Left [shift] key
Change up gear	Keypad 9
Change down gear	Keypad 3
Reverse	Down arrow key

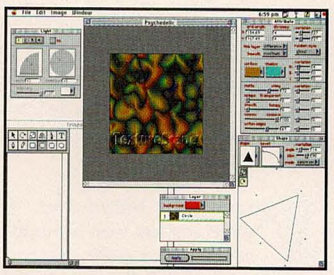
3D on the Net

You might already think that the Internet is a really groovy place, but if you find it a bit drab, then you'll be interested two save-disabled 3D demos that we have this month.

The first is called *Specular 3D Web Workshop* and it's a collection of graphics tools designed to enable you to create 3D effects for your Web pages. Included as part of the package is *Specular LogoMotion*, which enables you to easily produce 3D text to use in both logos and headings.

That's not the end of the bundle though – you also get *Specular TextureScape*, which enables you to generate background textures for your pages, and *Specular WebHands*, which is a collection of buttons and icons designed specifically for use on the Web. The full product also includes the Web authoring package, *Adobe PageMill*, so it's got everything you need to start creating great looking pages.

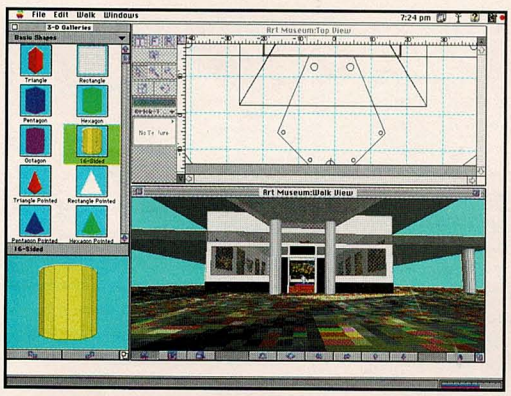
***LogoMotion* has been around for a while, but Specular is cleverly re-inventing it as a Web design tool.**



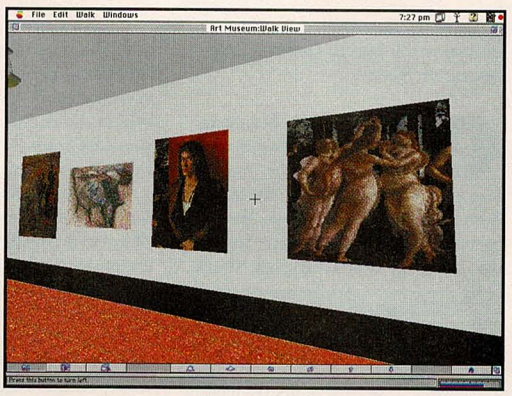
Give your Web pages that finishing touch with a textured background – don't forget to include some content.

Even if you don't create Web pages, or have Internet access, you'll be interested in *3-D Website Builder*. It's created by Virtus, a company already well known for its virtual reality software. Instead of enabling you to design a Web page with 3D effects, this software enables you to design your very own 3D worlds!

In the future, software like this means you will be able to walk around virtual 3D worlds live across the Internet, interacting with objects that you find. A great vision. I'll just be off now and see if Netscape has managed to download that page of text yet.



Our *3-D Website Builder* demo comes with some pre-created worlds, including this museum. Why not wander inside and have a look at what's on offer?



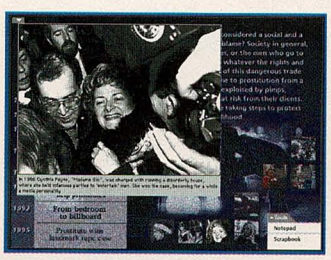
Create your own virtual worlds to encapsulate just about any vision you have. Imagination really is the only limiting factor when you're using *3-D Website Builder*.

Women's Rights

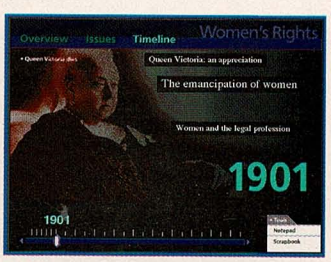
What is it? Interactive demo
Where you'll find it: Demos folder
Mac: 68030
PowerMac: any
Requires: System 7, 640 x 480 monitor, 256 colours, 2x speed CD-ROM drive

This British produced multimedia title from the Times Perspectives series traces women's struggle toward emancipation over the last two centuries. Not only does it follow major battles like the right to vote, but through a collection of articles from *The Times* archives, follows women's progress in everyday life.

This extensive interactive demo is split into three sections: an introduction, an issues section and a time-line. You can run the it direct from the CD, and there's a toolbox and handy Notepad utility included as part of the package too.



Was Cynthia Payne a wicked women or a victim of the disgusting obsessions of depraved and perverted men? I don't know, I never got invited to her parties.



A frightening figure of a woman – read what *The Times* had to say about Queen Victoria, in material taken from their extremely impressive archive collection.

CD Index

Use this listing as a folder-by-folder guide to what's on the Cover CD this issue and just where you'll find it.

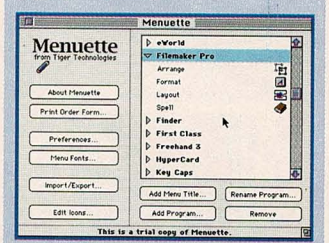
Demos folder

- *3-D Website Builder*
- *3D World 2.0*
- *Conflict Catcher 3*
- *The Ghost Cave*
- *IndyCar Racing II Demo*
- *Infini-D 3.5 Demo*
- *Now Startup Manager 7.0.1*
- *Now Utilities 6.5.1*
- *Planet Earth*
- *Specular 3D Web Workshop*
- *Women's Rights*

Finder Enhancers folder

All the shareware mentioned in this month's cover feature. See page 38.

- *AliasMenu1.1*
- *AMICO 2.0*
- *Apollo 1.22*
- *AutoMenus Pro 3.2*
- *Default Folder 2.6.1*
- *Dialog View*
- *gaspod-10*
- *Menuette 2.0.1*
- *PowerLaunch II 2.0.1*
- *TearOFFs1.0b6*



***Menuette* enables you to replace menu titles with icons. Can't find one you like? Design your own!**

MACFORMAT 44 Browser

Your interactive guide to the Cover CD highlights.

MACFORMAT 44 Floppy folder

- *The InformInit 1.1*
- *AliasMenu1.1*
- *Default Folder 2.6.1*
- *Dialog View*
- *FreeRam1.3*
- *gaspod-10*
- *King Albert II v1.0*
- *MacWorm*
- *Menuette 2.0.1*
- *Snitch201*
- *TattleTech 2.52*
- *TearOFFs 1.0b4*

Readers' Corner folder

The best of your contributions – ingenious software and exquisite artwork. But we want more!

Read Me

Read this before exploring the Cover CD. It shows you the files ➤

CD Index (continued)

you should install to get the most out of the the disc.

Resources folder
Everything you need to help you make the most of your Mac.
- *Acrobat Installer 2.1*
- *CDIconKiller 1.3.3*
- *Disinfectant*
- *DOCMaker SW v4.7*
- *GraphicConverter 2.4.3*
- *MacFormat CD Index*
- *NewsWatcher*
- *QuickTime 2.5*
- *ResEdit*
- *ShrinkWrap*
- *SoftwareFPU 3.04*
- *Sound Manager 3.2*
- *StuffIt Expander*

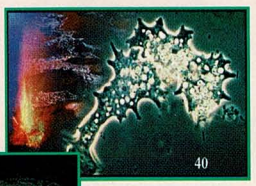
Shareware Central folder
All the programs from this issue's shareware reviews. See **page 124.**
- *FantasticVoyage*
- *King Albert II v1.0*
- *Luminous Chess*
- *PowerMenu v1.0*
- *Prima v0.1.1*
- *QuickPop 2.11*
- *QuizMaker 1.1*
- *The Calorizer 1.6*
- *TimeCache Demo*
- *TimeSlice 1.4*
- *ViewFont 1.3*
- *Word Finder 1.0*

For a cerebral challenge, find a partner and try *Luminous Chess*.

Shareware Plus folder
The best shareware collection around, all hot from the Internet.
- Applications
- Comms
- Developers
- Education
- Extensions
- Games
- Graphics
- *HyperCard*
- Icons
- Info
- Science
- Scripts
- Sound
- Updaters
- Utilities

Tutorials folder
Software and data files to accompany our latest how-to's.
- Databases – **page 64**
- *DOCMaker* – **page 62**

Planet Earth



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Mac: 68030
PowerMac: any
Requires: 8Mb of free RAM, System 7.1, 640 x 480 monitor, 256 colours, 2x speed CD-ROM drive

From Times Perspectives, the company who brought you *Women's Rights*, comes the environmental chronicle *Planet Earth*. This multimedia CD aims to tell you about the state of the planet and what mankind has so far done to destroy it.

This fully interactive demo enables you to explore the impact of man upon the other animals of the Earth over the last hundred years.

As with *Women's Rights*, you can copy the whole folder to your hard disk for optimum performance, but it will run directly from the CD. Double-click the icon to launch it.

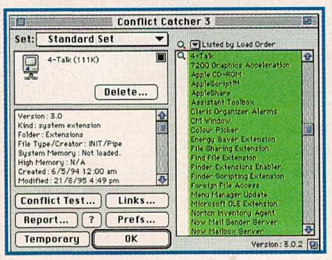
If mankind originated as amoeba then it's kind of ironic that we will probably wipe out all life on this planet except for the amoeba.

The complete multimedia title tallies the entire history of the Earth to the lifespan of a human being. Mankind turned up only a few seconds ago by this measure; will we still be here in a few seconds' time?

System utilities

What is it? Time limited demos
Where you'll find it: Demos folder
Requires: System 7

One of the main themes of this month's issue is looking at how to customise and optimise your Mac. We have demos of three of the best commercial packages that exist to help you get your Mac in tip-top shape.

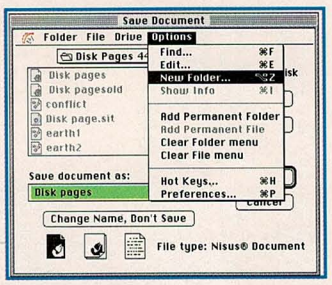


***Conflict Catcher* can solve those tricky Startup problems.**

Conflict Catcher is dedicated to solving the mysterious problems of Extension conflicts. It examines all your Extensions and establishes which are the troublesome ones; you can point it in the right direction if you have your own theories.

Now Startup Manager does a similar job, but instead uses a database of known conflicts. Obviously new Extensions appear every day, so the database is updated every month on the Now Software Web site.

Now Utilities uses the scatter-gun approach of providing you with so many utilities that you must find some of them useful. Most will be installed in the Control Panels folder, so look in there for the goodies.



***Now Menus* puts useful menus in every Open and Save dialogue box. What are the odds that Apple nicks all these ideas for Mac OS 8?**

To install

It's a good idea to try these programs one at a time, rather than installing all three, as too many new utilities in one go can get a bit confusing. Each utility has an Installer. Double-click this and follow the on-screen instructions. You'll need to **Restart** your Mac when you're done.

Got a problem?

Before installing software from the Cover CD or Floppy Disk, we recommend you always back up any important work on your hard disk. This precaution will avoid problems if it turns out that a program isn't compatible with your Mac set-up.

We make every effort to check our Cover Disks for compatibility and viruses, but the information here is intended as a guide only, and MACFORMAT cannot be held responsible for any damage to data, any inability to use this software or any resulting losses. So please back up first.

If your CD-ROM or disk is defective, return it to us and we will replace it. Please make sure you have followed the installation procedures described in these pages correctly, to ensure that there is a physical problem with the disk itself. Otherwise, the replacement will give you exactly the same problem!

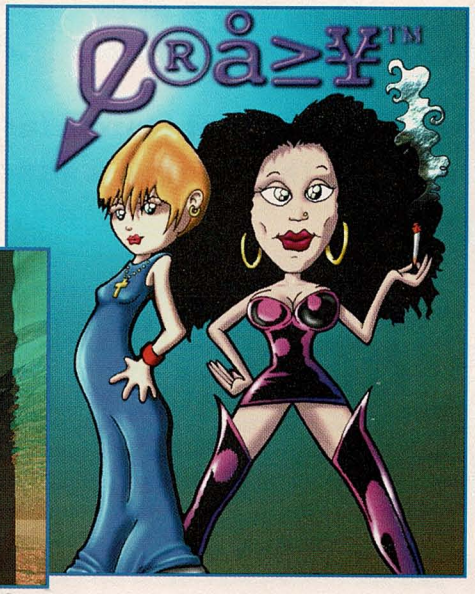
Enclose a self-addressed padded envelope (but we'll pay return postage) with the disk or CD, and a description of the fault. Please do not return disks or CDs to the editorial office; we don't hold any stocks of them and can only refer you to the appropriate address below.

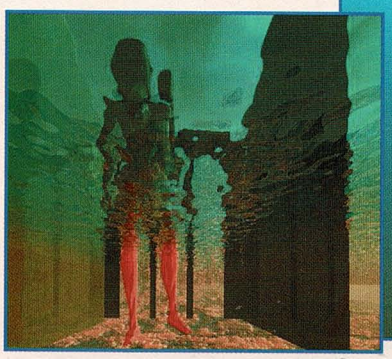
Return faulty CD-ROMs to:
MACFORMAT CD returns
Andy Pope, Ablex
Harcourt
Halesfield 14
Telford, Shropshire TF7 4QR

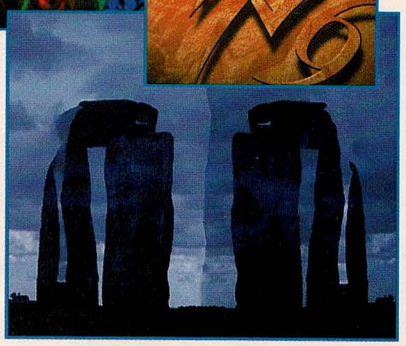
Return faulty HD disks to:
TIB plc, TIB House
11 Edward Street
Bradford, BD4 7BH

Readers' Corner

We always look forward to readers' contributions for our CD, and the art gallery remains ever-popular. Here are some samples from Kalun Lau, Goro Some, and Marcel Rouweler. If you would like to expose your art to thousands of your peers, then full details are in **Readers' Corner.**







Fancy seeing your work in this spot? Send it to us here, addressed to: The Disc Editor, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

On the Floppy

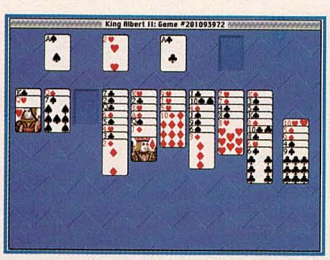
This issue's Floppy Disk features 12 great programs and handy utilities. Don't forget you'll find all of these on the Cover CD as well; just look in the Floppy folder.

The InformInit v1.1

What is it? Shareware
Where you'll find it: Floppy folder
Requires: any Mac

You don't need to know anything about the mechanics of a car to be a good driver. In the same way, you don't need to know anything about the System Folder to be proficient in using your Mac. However, if you want to decrease your chances of sitting on the hard shoulder of the M25 waiting for a "very nice man" to come and rescue you, it might be worth reading the manual.

The InformInit is such a maintenance manual for your Mac.



If you play your cards right, you should get a real kick out of our testing Patience game, *King Albert.*

Billed as "The indispensable guide to what's dispensable on your Mac", reading it will help you to avoid crashes and a whole host of other problems. It details Extensions and Control Panels one by one, telling you what they are, how much memory they use, and whether or not you can live the rest of your life without them.

The InformInit is the perfect companion to this month's cover feature (starting on page 38), which details how to customise and set up all of your Mac's most essential Control Panels.

Also on the disk

■ *AliasMenu* enables you to use extra customisable menus, just like the **Apple** menu. Each can have its own icon and appears in the menu bar, next to the **Special** menu.

■ *Default Folder* is an excellent Control Panel that adds extra functionality to **Open** and **Save** dialogue boxes, much like *Now Utilities.*

■ *Dialog View* complements *Default Folder* by adding several extra features, including the ability to change the width of dialogue boxes.

■ *FreeRam* is a tiny application that places a small box on the screen showing how much RAM you still have left to launch applications. It's much more convenient than continually opening the **About this Macintosh** box.

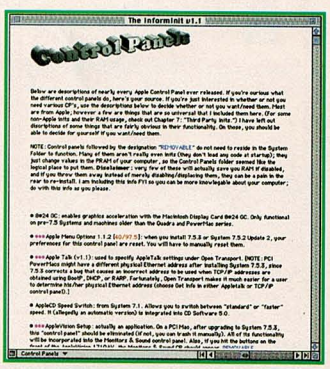
■ *Gaspod* will add a whole new menu next to the **Help** menu. This shows all currently open windows enabling you to bring any one of them to the front.

■ *King Albert II* is a Patience card game. It's been a while since we've brought you one and this one's particularly good, so enjoy.

■ *MacWorm* is a deceptively simple game: try and manoeuvre to eat the apple without touching the walls.

■ *Menuette 2.0.1* transforms the look of your pull-down menus, replacing the titles in the menu bar with icons – handy if you have a small monitor and it looks good too.

■ *Snitch* improves the way that the **Get Info** command under the **File** menu works. You'll see more information, and can immediately **Get Info** on the original of an alias.



***The InformInit* is absolutely jam-packed full of the crucial information you'll need to master your Mac.**

■ *TattleTech can* tell you everything you want to know about your Mac – its hardware, its software, even the colour of its socks.

■ *TearOFFs* is terrific. It enables you to detach pull-down menus so that they stay on the screen waiting for you to select commands. **MF**

How to use your disk

High density floppy disks normally contain up to 1.4Mb of software, but so that we can bring you as many useful programs as possible, we use a compression program to fit more on. So you need to decompress the software before using our Disk; this issue you'll need 3.2Mb of hard disk space.

We also recommend that you always make a back-up of the MACFORMAT Cover Disk, just in case anything goes wrong.

To decompress the Cover Disk contents, open the MacFormat 44 folder on your hard disk and double-click on the MacFormat 44 icon. You'll see a screen telling you about the compression utility we've used. Click Continue when you're ready.

A box then asks you where you want to save the software. Choose the place on your hard disk where you want everything stored, and click Save to get this issue's programs.

FutureNet

http://www.futurenet.co.uk/

Your Web pages

The Web brings out the best from Mac devotees, as Richard Hill finds in this month's survey of top sites.

FutureNet gives you access to the very latest from Future Publishing's 40-plus magazines 24 hours a day. Just connect to the home page to discover a wealth of news, features and reviews from all of Future's magazines. FutureNet also includes fresh news every weekday and interactive forums and news of the latest Future launches like *T3*.

Magazines you'll find on FutureNet include *Computer Arts, Future Music, .net, .net Directory* and *Edge*. FutureNet is Future Publishing's official Web site and Europe's busiest commercial site, with over 450,000 registered users.

The best of Future Publishing is on FutureNet 24 hours a day.

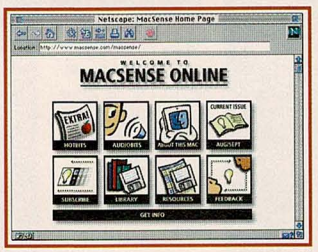
You'll need a modem and an Internet Service Provider account, or a direct connection through work or college, to access the Internet. Next you'll need a Web browser such as *Netscape Navigator* – then you're ready! Just direct your browser to http://www.futurenet.co.uk/ to receive your welcome to FutureNet.

MACFORMAT ON-LINE

MACFORMAT ON-LINE is the Web arm of the magazine you're reading right now. We offer regular news updates, along with reviews, how-to's and features – plus a few special treats. It's all organised into an easy-to-navigate structure that enables you to find the information you want quickly.

You'll also find the Ultimate Macintosh, the guide to Mac resources, shareware sites and newsgroups. It's your gateway to the Mac on the Net. To visit MACFORMAT ON-LINE, just point your Web browser at http://www.futurenet.co.uk/computing/macformat.html/

Mac zines



The zine, or fanzine, is a tradition of paper-based publishing that is enjoying somewhat of a Golden Age as the Web becomes more popular. Zines are magazines produced not by commercial companies, which publish to make a living, but by anyone who has something they want to say. For the many people who want to get involved with the Mac community, the Internet makes it a piece of cake to assemble a magazine and distribute it to a wide audience. The most successful Mac zines like *MacSense* (left) now operate on a semi-professional basis, growing from one-man operations to quality publications that even attract advertising.

Name	Web address
MacCentral	http://www.maccentral.com/

Daily updates include standard press releases and announcements, plus details of new shareware and beta releases. The *MacCentral* Showcase gives you a detailed preview of a forthcoming top game.

Name	Web address
Macintosh Internet Connection	http://members.aol.com/smart5/macologist/intconn.html

Dashing two-colour graphics take you through a basic service of news and software updates. The tables of Mac-related Web sites, with good information presented concisely, are the best part of the site.

Name	Web address
Mac Net Journal	http://www.dgr.com/web_mnj/

The most traditional of the Mac zines, keeping the values of print fanzines alive on the Web. News, interviews and general-interest articles such as "the media stereotype of the computer nerd" combine for an entertaining read.

Name	Web address
MacSense	http://www.macsense.com/macsense/

Free on the Web and by e-mail, or available to buy as a subscriber's CD-ROM, *MacSense* is one of the most professional Mac zines around. It includes regular news snippets with unusual angles, audio clip interviews, your technical questions answered and a great deal more.

Name	Web address
NewtNews	http://www.ridgecrest.ca.us/NewtNews/NN_top.html

An example of how magazines that couldn't survive as a print publication can prosper on the Web, *NewtNews* is a centre for the small-but-growing community of users of the Apple MessagePad and its Newton operating system.

Name	Web address
WebFlux	http://members.aol.com/jrspacer/ixmag.html

Bringing the "fan" back into "fanzine", JR Mooneyham dishes out his personal views on topics surrounding the Mac, and often life in general. He also offers a haven for other Mac essayists who want to speak their minds.

Help!

Mac Pruning Pages
The indispensable guide to what's dispensable on your Mac
&
the home of
The InformInit
The most comprehensive guide to extensions, control panels, and system stuff ANYWHERE!

The Web isn't just good for becoming a part of the Mac fan scene. Now you can easily find all sorts of technical information that would take you days or weeks to track down through more conventional means. The key site for official Mac data is the Apple Technical Information Library (**http://til.info.apple.com/til/til.html**), a massive bank of figures and specs for all Macs and Apple hardware. And there are many Mac fan sites to supplement the TIL: projects like the Mac Pruning Pages (left) can help prevent your Mac problems.

Name	Web address
MacAssist	http://www.mac4hire.com/biz/Support/MainSup.html

MacAssist could be a dream come true – a free e-mail helpline that promises to solve your Mac crash difficulties within 24 hours. The firm behind it is just asking for trouble.

Name	Web address
The Mac Pruning Pages	http://www.AmbrosiaSW.com/DEF/

Dan Frakes, author of *The InformInit* guide to Extensions you'll find on this issue's Cover CD and Floppy Disk, also publishes the Mac Pruning Pages. It's an invaluable Web guide to Control Panels and Extensions.

Name	Web address
Mac Troubleshooting Tips	http://www.mac4hire.com/biz/Support/johnmalm/index.html

A straightforward step-by-step guide to cracking the most common problems you might have with your Mac, such as Sad Macs, flashing floppy disk icons and, of course, those pesky Type 11 errors. If something goes wrong, come here first.

Name	Web address
The Sad Macs Update Page	http://www.oakland.edu/~landau/sadmacs/

Tips and advice gathered from fellow Mac owners. The Update Page shows a preoccupation with the insides of your Mac that borders on the unhealthy, but if you've got an obscure problem this could be the place to find an answer.

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SAMSUNG

1997's PowerMacs take flight ■ Radical computer for education ■ Macs from Motorola and Akia ■ Special education report ■ News Editor: Richard Hill

MACFORMAT NEWS

Even broader choice of Macs

Faster, more powerful Macs lie on the horizon as Apple and its partners prepare for 1997. A set of PowerMac launches will accompany other projects, which together will increase your options when you're deciding which computer system to buy. Computers will be repackaged in intriguing ways to offer low-cost alternatives to the traditional desktop Mac. But the sheer variety of new Mac systems will keep it at the heart of Apple's drive to offer the most progressive choice of creative, educational and recreational devices you'll find anywhere.

The PowerMac 7600 could be replaced by a faster, cheaper Mac.

Apple's PowerMac range is set for a heavy revamp over the next twelve months, with at least ten new machines broadening the scope of the computers. A brand-new model will act as the base for the range, while you'll also see systems with more speed, as the professionals demand.

Mac power

The next new wave of PowerMacs should be appearing in the first few months of 1997, according to latest reports in the US trade paper *MacWeek*. The PowerMac 4400 will become the computer aimed at people or firms with a strict budget. It's likely to have 16Mb of RAM and a PowerPC 603e chip (the kind currently used in the Performa range) and could cost as little as £1,630. Replacing the existing 7200 and 7600 machines, the PowerMac 7300 will offer a 604e chip, running at a variety of different speeds, and is intended for both mainstream and business use. The new Macs will be accompanied by faster versions of the 8500 and 9500 for graphics and video use.

The price of a PowerMac should take a further drop in the summer of 1997 as a range of 604e-based PowerMacs appear. Apple's fastest current PowerMac is the 9500/200, which sells for around £3,990 for a 32Mb machine at present. The new range should introduce an equivalent PowerMac for under £2,000.

The speed increases seen in Macs like the 8500 are set to continue.

These huge price reductions will happen in tandem with the debut of Apple's fastest-ever Macs. Code-named PowerExpress, the range will appeal to the same high-spending, demanding firms who currently buy 8500s and 9500s. PowerExpress will use chips faster than anything around today, and you'll also see more multiple-processor systems where PowerPC chips work in parallel to give you more horsepower. These will be state-of-the-art computers where you'll have options for high-speed device connections through FireWire technology, huge hard drives and possibly even Digital Video Disc drives replacing CD-ROMs.

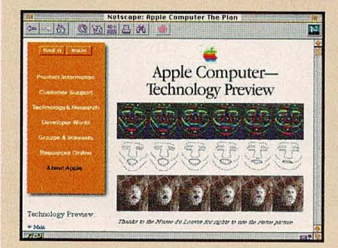
Multimedia power

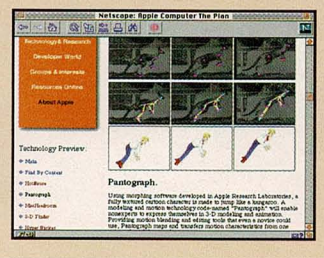
The abilities of the PowerExpress Macs will be boosted still further with the addition of graphics and video accelerator cards. The cards will plug into the PowerMac's Peripheral Component Interconnect (PCI) expansion slots, taking on many intensive duties that the Mac's main processor usually has to take care of. In effect, they'll be a multimedia equivalent of the Floating Point Unit co-processor used by older Macs, such as Quadras and Mac IIs, to handle complex 3D tasks or large spreadsheets.

Based on a forthcoming Philips processor called TriMedia, the cards will be able to speed up digital video in particular, but also programs like *Photoshop* or *Strata StudioPro* – made respectively for working with graphics in 2D and 3D. It's possible that the top programs will be able to call directly on the Philips TriMedia chip to carry out the most complex functions, making the combined force of the PowerMac/TriMedia system attractive to both

See the future

Apple's Web site The Plan (http://theplan.apple.com/) this month offers glimpses of the firm's newest projects. *MacHeadroom* (left) links written dialogue with faces that talk realistically, while *Pantograph* (right) matches motion models used in animation, so you can transfer movement styles between different characters. The site previews further projects.





The flagship 9500 may be left standing by a super-chip from Exponential.

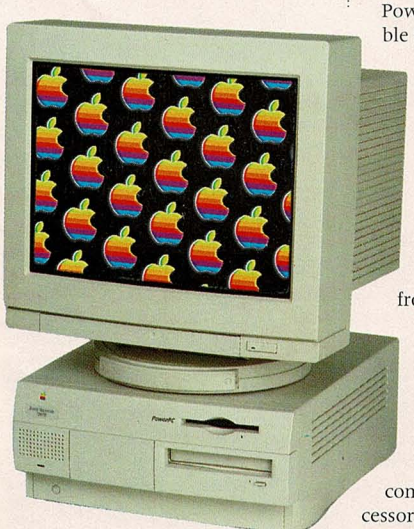
professional design and multimedia studios, for example.

Exponential power

Moving beyond even the fastest PowerMacs due for next year, a new design of the PowerPC processor could be appearing in PowerMacs that would be twice as fast as anything available today. New firm Exponential is ready to announce the first fruit of its work with brand-new chip technology. The X704 will be a costly but blisteringly fast chip that could appear in machines as soon as next summer.

Processor speeds are measured by their clock speeds, a broad benchmark of how many program instructions the processor can cope with each second. While the fastest PowerPC processor today (available in only a few Power Computing machines for the time being) runs at a clock speed of 225MHz, the X704 will clock in at 500MHz.

The awesome rate of increase in processor speeds may be starting to create headaches for computer designers, though. It's possible that you won't benefit from the full speed of chips like the Exponential X704 when it first appears because the rest of the computer, hampered by other design considerations, can't keep up with them. When the X704 chip appears in its first Mac-compatible computer, the processor will run twice as quickly as anything you can find today; but the power of the computer may prove disappointing.

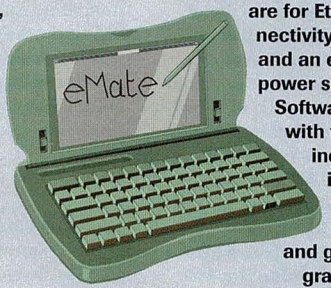


A new 4400 may replace the 7200 (above) as the cheapest PowerMac.

Alternatives for '97

Apple is working on new devices which will work with your Mac and assume natural positions within the whole Mac range, despite not being Macs themselves. Shown at October's Apple European Education Conference in Brussels, the eMate 300 is a new kind of computer designed to meet the needs of schoolchildren.

Equipped with a stylus and keyboard, the eMate is based on Apple's Newton operating system, best-known for its handwriting recognition and one-touch ease-of-use on the MessagePad range of hand-held devices. The keyboard makes the eMate a tad larger – the device is like a cross between a MessagePad and a PowerBook.



The eMate 300 – a new computer for education (artist impression).

Apple's intention is to have a serviceable, durable and flexible machine, which is capable of being used across the curriculum. This will be easy to use, capable of being easily hooked to more powerful systems and still be essentially self-sufficient. Apple Europe's Director of Education Nigel Turner said: "It's the start of a platform specifically for education." There is now to be a period for European educators to evaluate the eMate 300, to create just the right package for the market when the product is launched in 1997. Apple estimates the eMate should cost around £750.

The designers of the eMate have consulted closely with young users in an attempt to ensure that it has kid-cred. It's housed in a dark green, rugged case with rounded edges for durability in the school environment. There is an integral carrying handle at the top and a lid as well as the screen, which is a monochrome, high-resolution touch-sensitive design. Like the other components of the eMate, the keyboard is modular and can snap out.

Using an ARM 710 chip with 8Mb of RAM – giving more power than any of the MessagePad range – the eMate 300 is designed to operate as an integral part of a complex classroom system. It can communicate with both Macs and PCs via infrared or LocalTalk links. There is sound input and output as well as a PCI slot, most likely to be used for a modem. Future plans are for Ethernet connectivity, flash ROM and an external power supply.

Software expected with the eMate includes the integrated word processing, drawing and graphing program *NewtonWorks.* There'll be an address book, note pad and calendar applications, as well as *Classroom SetUp,* a control utility similar to the Performa's *At Ease,* for teachers. Obvious candidates for third party development in this area are data capture and communications tools. See page 20 for more details on the European Education Conference.

Pippin 2

Originally intended by designer Apple as a low-cost multimedia console, Pippin is now blossoming as an NC (Network Computer), a machine made for people who can't afford (or don't want) a desktop computer and for businesses that want hundreds of simple devices for everyday tasks. A design for 1997 builds on growing interest.

Pippin 2 will meet the NC standards recently announced by an industry group including Apple itself, so it should work with similar devices from other firms. Based on the Mac OS, Pippin 2 will be a modular system that will enable hardware firms to build various Pippin devices from the same building blocks. Optional components include a ROM chip for the operating system, CD-ROM or Digital Video Disc drives, and chips for MPEG video and fast 3D. Pippin will go on sale in the US in November. Katz Media's Pippin devices go on sale in Europe next year.

Could Pippin be joined by a faster version for business users?

MARK SEALEY, RICHARD HILL

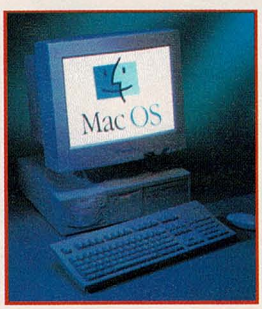
Five-year promise on Motorola Macs

The StarMax from Motorola will be the next Mac-compatible to go on sale in the UK, bringing your choice of different Mac makers to five. On sale worldwide from November, the StarMax range consists of four different machines, each of which can appear in either of two cases. Motorola estimates prices will start from £1,500 for the StarMax 3000/160 with 16Mb of RAM; see the table below for details of the full StarMax range. Meanwhile, a Japanese firm is joining the Mac club with a set of new ideas.

Motorola is the largest firm to release Mac-compatibles so far, adding clout to Apple's licensing programme and opening potential new markets in big business. Motorola is backing its push of the Mac into business with an impressive five-year guarantee on each StarMax, meaning many companies are promised free repairs for the whole time they would typically use their purchase.

The StarMax uses common components originally designed for PC-compatibles, which means the computers will cost you less than equivalent Apple models. Motorola has included PC-standard PS/2 connectors, so you can hook up a PC keyboard and mouse. The only monitor port is an SVGA connection – again this is a PC standard.

Price is not the only consideration behind these moves. Motorola will be offering its models to large corporate firms which largely rely on PCs, and so will welcome not having to worry about clashing standards. And PC components will become more vital as the PowerPC Platform, also aimed at business, appears next year. For more details on the StarMax, contact Motorola Computer Group on 01628 39121.



Motorola's StarMax places the firm against Apple for the hearts of business users.

More Macs from Japan

The latest company to announce that it's planning to produce Mac-compatible computers will bring some new innovations to the Mac. Computer firm Akia will be offering Macs to business clients in Japan, including slim Liquid Crystal Display monitors. These flat panel screens are much thinner than conventional cathode-ray tube monitors used by Macs and other computers at present; they also use less power than their predecessors, but they do currently cost a lot more.

The firm will offer both desktop PowerMacs and portable Mac OS computers from November this year. While Akia's Macs will only go on sale in Japan for the time being, the firm's approach highlights the new business practices that Apple's licensing of the Mac OS permits. Akia will essentially be a maker of Macs in name only.

Akia already buys components from many companies including IBM, First International and Compal. It has further contracted out the machines' manufacturing to Memorex Telex, and IBM is being given the responsibility of handling the technical support. Akia has also signed deals with distributors and dealers to sell the Mac-compatibles.

Using industry-standard parts and handing out specific tasks to specialists in each field enables firms like Akia to save money and thus charge less for its computers: good news for customers. It's a model many other firms may follow in the future as Apple remakes the Mac to become more of a mix-and-match system.

Turn to page 58 to discover more about the newest LCD screen technology and how it could become widespread in years to come.

StarMax range

	StarMax 3000/160	StarMax 3000/200
Processor	603e	603e
Clock speed	160MHz	200MHz
Video RAM	1Mb	1Mb
Apple equivalent	Performa 5400/160	Performa 6400/200
	StarMax 4000/160	**StarMax 4000/200**
Processor	604e	604e
Clock speed	160MHz	200MHz
Video RAM	2Mb	2Mb
Apple equivalent	8500 (approx)	9500/200

Apple equivalents compare StarMax processor speed with the current Apple range.
All StarMax machines are available as desktop models *or* minitowers.
All desktop variants boast 16Mb RAM, 1.2Gb hard drives, and three PCI expansion slots. All minitower versions have 32Mb of RAM, 2.5Gb hard disks and five PCI slots. All models, whether in desktop or minitower configuration, come with a 256K Level 2 RAM cache, 8x CD-ROM drive and 28,800bps modem.

News in brief

New Mac OS update

System 7.5.5, the latest reworking of the Mac operating system, is now available in its US version. Consisting essentially of minor bug fixes, it is in fact the last ever version of the Mac OS for some Mac owners.

Future versions of the Mac OS, beginning with System 7.6 early next year, will work only on Macs with 68030 or 68040 processors and PowerMacs. If you own a Mac Plus, Classic, SE/30, LC, Mac II, Mac IIx or a Mac IIcx, for example, this release marks the end of Apple's official development of your Mac's System.

Improvements in System 7.5.5 include better virtual memory, speed bumps for PowerMacs and fewer of the infamous Type 11 System crashes some PowerMacs have suffered from. We hope to carry the UK version of System 7.5.5 on the MACFORMAT Cover CD in the next few months.

Mac sales boom

Sales of Mac software across Europe increased by a healthy 68% in Spring of 1996, according to trade body the Software Publishers Association. Compared to the same three months of 1995, the Mac OS grew faster than any other system – including Microsoft's Windows – and earned sales worth £27 million. When counting sales of all software, the SPA reports that the UK and Ireland saw the strongest sales in Europe – around £192 million for the first half of 1996.

Apple and Sun link up

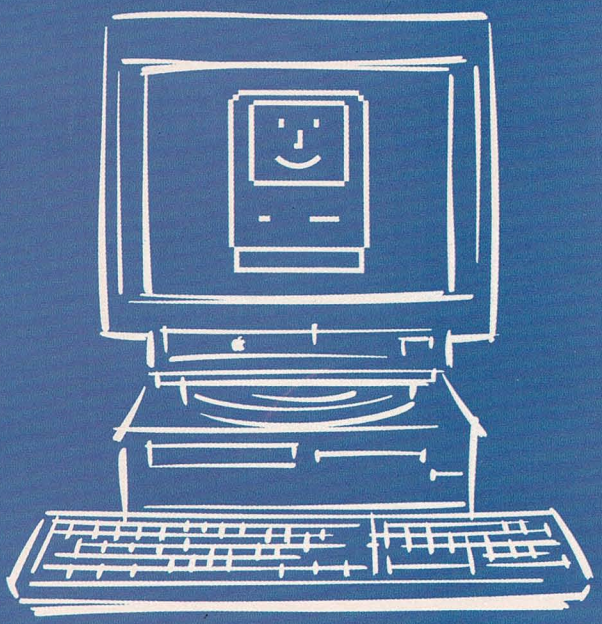
Apple is to work more closely with Sun, the firm behind the increasingly well-known open programming system Java. The two firms will make Apple's *OpenDoc* component software system work directly with Java components when they're released, giving you true pick-and-mix software choices. Java programs will be able to play back QuickTime movies, while Apple and Sun's computers will be able to communicate with each other more easily. Sun was rumoured earlier this year to be taking over Apple and using its key technologies, but this team-up should prove equally productive.

Introducing HotSauce

You can see the Internet in a whole new way thanks to Apple's *HotSauce* program. Available for free as a *Netscape Navigator* plug-in program or as a self-contained browser, *HotSauce* presents Web sites as a map with added depth. You can use your mouse to manoeuvre around the sites as signposts. Moving into the space on your screen reveals individual pages within the sites you're closest to.

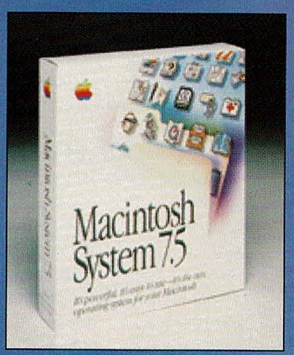
HotSauce is an example of Apple's Meta Content Format in action. The firm is promoting MCF as an Internet standard for describing the content of Internet sites. Agreeing on such a standard would mean companies could devise exciting new ways of helping you use the Net.

Give your Mac™ a face lift



Introducing... System 7.5, Version 7.5.3

The latest version of the Mac OS including new and updated technologies plus all previous System 7.5 updates and revisions in one convenient installer.

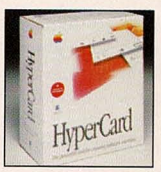


Other Apple™ branded solutions available from Claris...

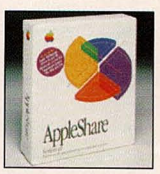
Apple Internet Connection Kit. All the software tools you need for quick, easy and direct access to the internet.

Apple Remote Access. An easy and secure way to connect your Macintosh or PowerBook computer to information and resources at a remote location – anywhere.

Apple Media Tool. Create dynamic interactive multimedia projects without any programming.



HyperCard.™ An easy-to-use development tool for creating a wide range of custom software applications for the Macintosh.



AppleShare.™ High-performance, easy-to-use file and print sharing over a network.

Mac™OS

You want the power to be your best on the Macintosh™ – so put the smile right back on your screen with *System 7.5, Version 7.5.3.*

Once you get into it, its new productivity-boosting enhancements will bring a smile to *your* face too!

Significant improvements in stability and performance... All previous System 7.5 updates and revisions in a single installer... Improved integration with MS-DOS and Windows software applications through MacLink Plus Translators (8.0.6) from DataViz... New technologies like Open Transport™, Open Doc™, QuickDraw™ GX.... *It's almost like getting a whole new Macintosh!*
So now's the time to investigate the potential of System 7.5.3 in *your* environment. It could be your first step towards facing your Macintosh future with that quiet smile that says "Confidence".

And, while you're about it, why not check out the other Apple branded solutions from Claris? Just like System 7.5.3, they're all designed to make life on the Macintosh as trouble-free, productive (and happy!) as possible.

Discover the potential of System 7.5.3 – and the other Macintosh solutions available from Claris – today... See us at Apple Expo on stand E4

or call 0345 413 060 for your nearest Claris dealer, quoting reference MFMF126

CLARIS

Simply powerful software.

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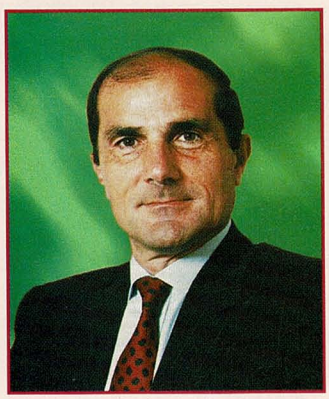
Education's digital future

Ambitious plans for using education technology to boost our living standards, connecting every school in Europe to the Internet and introducing a new generation of child-friendly computers were announced at a major Apple-led education conference in October.

Over 400 delegates from 31 countries attended the two-day Apple European Education conference near Brussels at the beginning of the month. Academics, researchers, developers and key figures in the education technology industry, with even a scattering of teachers and students, attended a variety of presentations and sessions – all of which were built on the premise that education is both a lifelong process and is increasingly of global dimensions.



Apple's Marco Landi wants technology to make a difference at school.

The conference marked Apple's intention to play a major role in supporting the policy makers in Europe and the UK who have recognised this and want to maximise the opportunities for European learners of all ages and backgrounds, not just those in schools. Such an enlightened policy, says Apple, would be infinitely richer if it was based around its Mac and Newton technology.

One of the key announcements of the conference supported Apple's belief that the success of education technology depends on access to communication tools. The eMate is a new portable machine designed specifically for the school market (see page 17 for details).

Apple's Chief Operating Officer Marco Landi announced a European Education Task Force, a partnership of industry and telecom providers. Its goals include the connection of every school in Europe to a network that provides teaching tools and information; to provide these schools with appropriate multimedia equipment; to create a wide range of curricular software; and to support and train teachers in their use. Education Online, a free support network for teachers in the UK using IT and firmly endorsed by Apple, was launched at the conference. An Apple Classroom of Tomorrow research site for Belgium (the third of its kind within Europe) was also announced.

Computer firms like Apple want to transform the European education landscape. (Image from *Terra Forma* by Andromeda Interactive; see our Buyer's Guide, starting on page 131, for details.)

Many delegates that MACFORMAT spoke to in Brussels regarded this European event as an affirmation that Apple is uniquely placed to meet the needs of the target populations. Research presented by several speakers suggested that accessible technology will continue to contribute significantly not only to the chances of greater job prospects throughout Europe, but also to richer personal development of the individual user. "Education is about change," proclaimed Landi. "The match comes with Apple's outstanding record in innovation."

The conference demonstrated clearly that Apple has thought through its education strategy and is clear on where it's heading. Its innovative technology (such as the eMate) is particularly well-placed to meet the demands of an educational environment where solitary children sitting in front of single desktop machines receiving information does not work!

MARK SEALEY

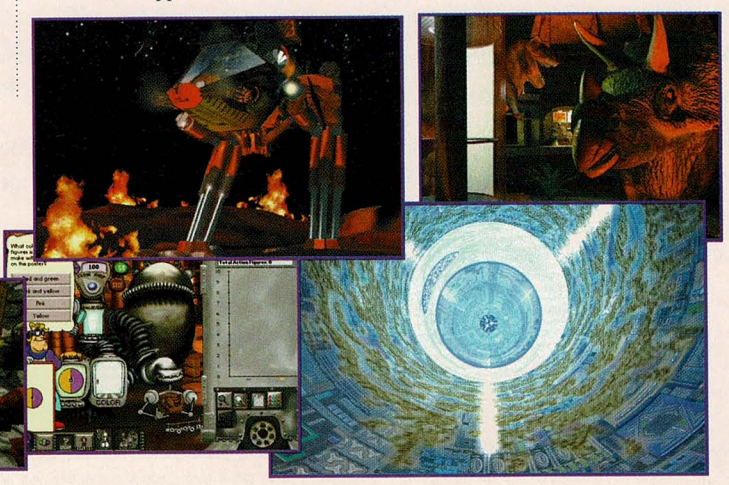
Mac gets ready for Christmas

You've got plenty of new software to look forward to between now and Christmas, and Apple is preparing its seasonal promotion to make sure all Mac owners know about it.

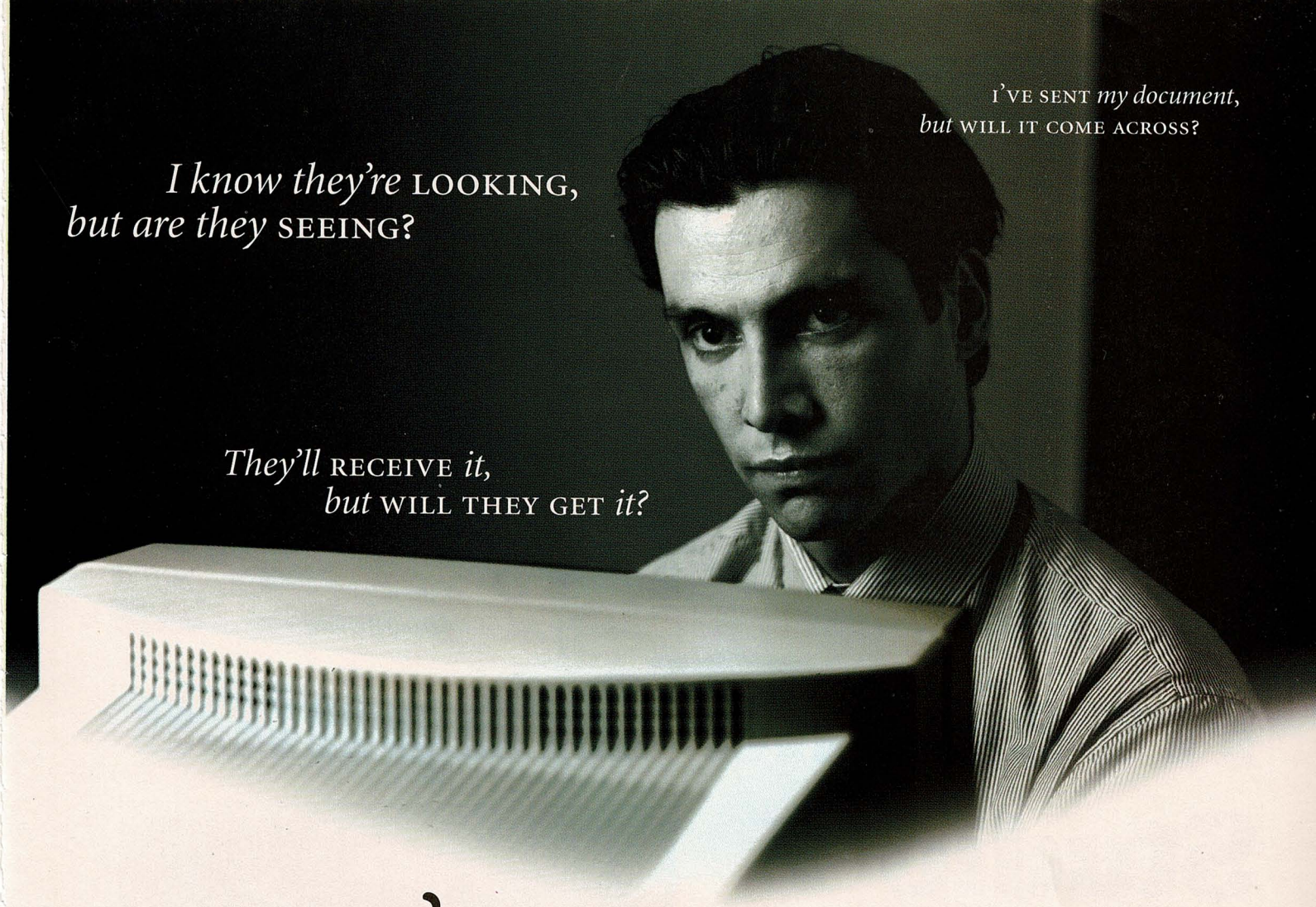
Dozens of new titles spanning a huge variety of subjects will appear, and Apple will highlight the most prominent in its advertising campaign. Apple Europe's Consumer Marketing Manager Stephen Doran told MACFORMAT: "We're looking to promote twenty or so of the best entertainment and edutainment titles." There'll also be a special Mac games and multimedia catalogue, giving details of all the newest titles and where you can find them. This may then appear in an extended form on the Web.

The end-of-year Mac multimedia and games releases were previewed at the European Computer Trade Show, held in late September at London's Olympia Grand Hall. We'll look more closely at the season's top games in next month's MACGAMER supplement. **MF**

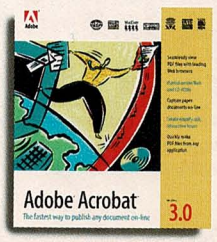
Thousands of retailers saw the latest products at September's ECTS.



Clockwise from top left: Interplay's epic *Shattered Steel;* Dorling Kindersley's *Dinosaur Hunter;* Sierra's *Rama;* Iona's *Maths Heroes;* and Edios Interactive's *Deathtrap Dungeon.* More in MACGAMER, free with MACFORMAT 45.


I'VE SENT *my document*,
but WILL IT COME ACROSS?
I know they're LOOKING,
but are they SEEING?
They'll RECEIVE *it*,
but WILL THEY GET *it?*

WHAT'S *the point?*



The point is this: you want your ideas communicated clearly and powerfully – without compromise. And you want people to act on your information. Every time.

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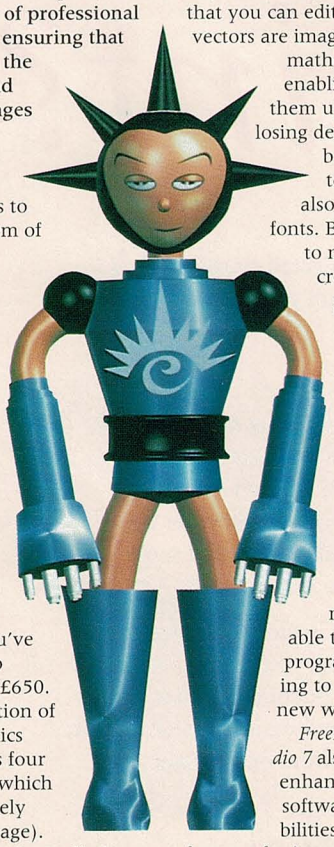
http://www.adobe.com

Discover the power of *FreeHand Graphics Studio.* Plus: the latest scanners, T-shirt printing and an interactive soap opera. Compiled by Richard Hill.

FreeHand Graphics Studio 7

Perhaps you've been spending the last several months gradually building up a collection of professional graphics software, ensuring that your choices cover the full range of 2D and 3D functions – images and text alike.

Maybe you've gone further, going to great pains to find that perfect item of Web software to enable you to prepare your graphics for the Net, as well as for print. If so, please don't be too irritated to learn that your careful investigations were all for nothing – and that Macromedia's *FreeHand Graphics Studio 7* gives every Johnny-come-lately all the graphics power you've been assembling so delicately. For just £650.



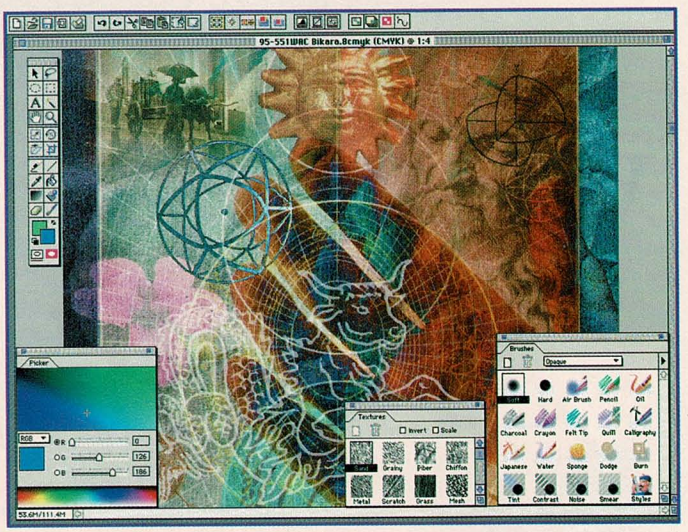
The latest collection of Macromedia graphics software comprises four programs, each of which is available separately (see the opposite page). But it's most definitely *Studio 7's* keen pricing that is most likely to capture your imagination. The suite enables you to create 2D graphics in bitmap or vector formats. (Bitmaps are rich, photo-like images that you can edit pixel-by-pixel; vectors are images described in mathematical form, enabling you to scale them up or down without losing detail.) You can also build and add detail to 3D models, and also create or tweak fonts. Best of all, it's easy to move anything you create in one program to another – often it's simply a case of dragging a certain object from one window to the next.

Each program follows a format for menus, toolboxes and palettes called the Macromedia User Interface (MUI). It all means that you are able to switch between programs without having to adjust to a whole new way of working.

FreeHand Graphics Studio 7 also includes further enhancements to the software's printing capabilities; but it's all the features for interactive graphics that have changed most dramatically since the programs' previous versions. Macromedia's *Shockwave* system means it's now easy for you to build Internet features into your graphics. For example, you can use *xRes* to make an image map for a home page, dropping live links to other Web pages directly onto elements within your image. Alternatively, you might create vector-based graphics to place on a Web page. You could then click anywhere on the graphic to zoom in further for more detail – useful for a complex map, for example.

FreeHand Graphics Studio 7 adds 10,000 clip art images, 250Mb of photos, 500 fonts, 500 *FreeHand* templates and dozens of 3D models to its four cornerstones, giving you a true all-in-one package.

Price: £647. Out: Autumn. Contact: Computers Unlimited on 0181 200 8282.



***FreeHand Graphics Studio 7* offers powerful software, a consistent user experience and a competitive price. Images created with the Studio by Go Man Go (left) and Joseph Kelter (above).**

Inside the Studio

Name	On its own	What it's for
FreeHand 7	£529	Drawing and text, page layout
xRes 3	£586	Image-editing
Extreme 3D 2	£586	3D modelling and rendering
Fontographer 4.1	£469	Creating and editing fonts

More product news in MacFormat's new Buyer's Guide, starting page 131

Extreme 3D 2

Macromedia's 3D modelling and rendering program has now added several fresh tools to its line-up. It supports Apple's QuickDraw 3D file format for the first time. QD3D is fast becoming the standard for exchanging files between different 3D programs. QD3D support also means that you can speed up all of *Extreme 3D's* operations with a QD3D-compatible acceleration card in your PowerMac.

New features include particle tools, which enable you to make spectacular animations of groups of similar objects – such as transparent bubbles or snowflakes floating to Earth. The **Metaform** tool also enables you to convert any flat outline into a full 3D object. And of course, there's a range of Web features, including the ability to build immersive 3D worlds using Virtual Reality Modelling Language.

Go Man Go Productions carved out this spiral shell using the organic tools of *Extreme 3D 2*.

xRes 3

The latest version of Macromedia's image-editing and compositing program adds a number of subtle but powerful changes to its catalogue of high-speed, low-memory features. These include brushes and effects for changing photo-rich images subtly or dramatically. It's ideal for working with complex images.

You can now use *xRes* to create interactive graphics for the Web. Simply drop Web links straight into images, or pan-and-zoom around photo-images using *Shockwave*.

xRes enjoys closer integration with fellow Macromedia programs, including MUI changes to its interface. Just as *FreeHand* converts *xRes* bitmap images, so too can *xRes* adapt *FreeHand* vector diagrams. You can also bring full *Photoshop 3.0* files, including any layers you've made, into *xRes*.

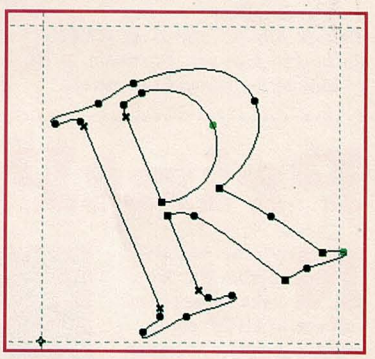
This finished *xRes* image by Joseph Kelter shows how effective the program is when you want to make sophisticated composite images.

Fontographer

Changed less radically than its *Graphic Studio* stablemates, *Fontographer 4.1* enables you to get more out of your fonts. You can modify any of the font families you own, making lighter or heavier versions, or even combine two to make a new design.

You can work with all common font formats, including TrueType and PostScript, or you can sketch or scan simple line art into the program. Trace your own signature, for example, and you'll never have to sign a letter again. You can also add characters that weren't in the original font set.

Fontographer accepts industry-standard EPS image files, so you can combine it with *FreeHand* to create the most exotic typefaces imaginable. Make a company logo in *FreeHand*, then convert it into a font to use as liberally as you like.



Use *Fontographer 4.1* to manipulate font sets and individual letters with dexterity.

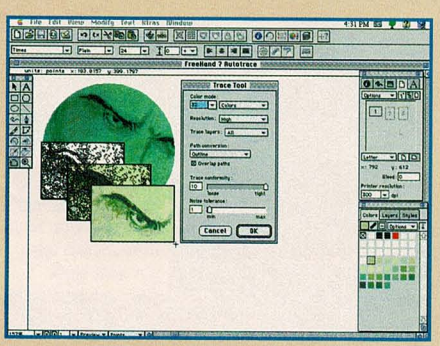
FreeHand 7

The flagship of the *Studio* suite, *FreeHand* has unaccountably moved straight from version 5.5 to version 7. (Could this be so that *FreeHand* stays one version higher than the rival *Adobe Illustrator*? And will Adobe retaliate by moving to *Illustrator 11*?) As ever, *FreeHand* offers tools for creating elaborate vector graphics and effects – and supports this with increasingly strong desktop publishing features, used for adding text and creating multi-page documents.

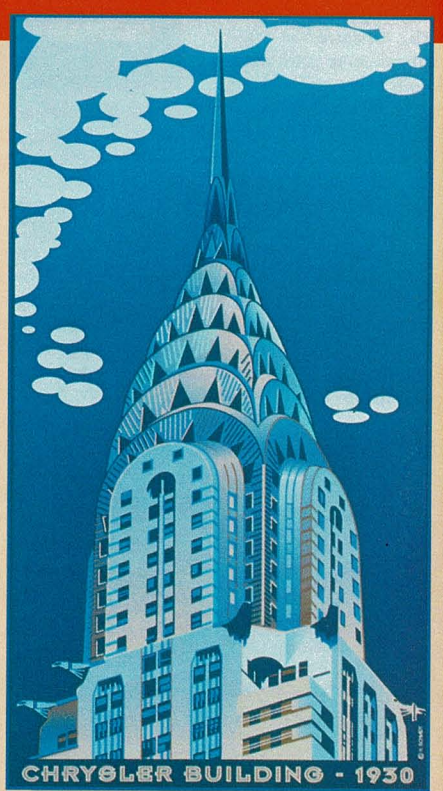
New MUI changes (see opposite) give you more flexible control over your *FreeHand* tools. You can now rearrange the order of tools in palettes as you prefer, or snap various palettes together to form larger windows. Improved drawing tools include a pen tool that uses less RAM than in previous versions of *FreeHand*, and a Bézier pen for creating subtle curves. Revamped blending tools enable you to make single blends that go through groups of objects – or attach blends to hand-drawn paths, to send the colour graduation in unexpected directions.

A powerful search-and-replace function means you can find all objects with a particular line thickness, colour or blend – and modify in one stroke any attribute of the objects you've selected. Further automatic graphics work is now possible thanks to *FreeHand's* ability to use AppleScript or Java to set up automated routines.

The Autotrace feature enables you to convert bitmap photo images (from the companion *xRes*, for example) into full vector art. Your results can go into print closer-than-ever to the way you intended, thanks to support for colour separations of up to six plates. (Typical colour print-outs consist of four colours.) *FreeHand* can use Apple's ColorSync or Kodak's Digital Science ICC systems to make sure your colours print out accurately.



FreeHand's Autotrace feature means you can easily convert _xRes_ images into vector drawings.

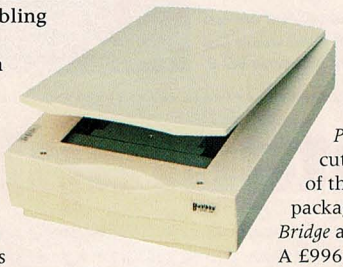


This towering image was made by Heidi Schmidt with the latest version of *FreeHand*.

Scanners for all

New scanners for Autumn demonstrate how far the field has come, offering excellent colour conversion of your printed or drawn images, whether your budget is £200 or £825. Each of the scanners is a flat-bed model, enabling you to place your printed images on a glass plate ready for scanning into your own Mac.

Epson's GT-9500 offers an exceptional level of detail from £825. It can scan in images at 36-bit level – equivalent to 68 thousand million distinct colours – and at up to 4,800 dots per inch by using software techniques to enhance the picture. This means the scanner is well-suited for full-scale professional publishing, enabling you to work on the image in your Mac graphics program and still print it later in extremely high detail.



Devcom's colourfully-named Black Widow costs just £199.

The GT-9500 comes with a choice of software. For £825 you can get a scanner with *Adobe Photoshop LE*, the cut-down version of the image-editing package, plus *TextBridge* and *PageManager*. A £996 package gets you the scanner plus a full copy of *Photoshop*. The GT-9500 is also able to use *ColorSync 2*, Apple's colour matching system, for keeping your colours consistent – from scanning your original to printing out your completed project. For more details on the GT-9500, contact Epson on 01442 61144.

Apple's latest device introduces some new ideas to the field for £652. Like many other scanners nowadays, the Colour OneScanner 1200/30 offers optical character recognition (OCR) software, for scanning in typed copy and interpreting it as a text file rather than an image. Xerox's *TextBridge 3.0* program goes beyond this to produce a World Wide Web page from your original text – converting it into HTML, the code used to describe the make-up of Web pages.

The OneScanner also includes *Dispatcher*, Apple's simple-to-use scanning and image-editing software. The supplied *Kai's Power Tools 3 SE* and *Convolver SE* are both plug-in programs you can use within *Dispatcher* or *Photoshop*, for example. The scanner can do its job at up to 4,800 dots per inch using interpolation software – and its 30-bit colour capabilities can recognise over one thousand million colours. For more details call Apple on 0800 127753.

Epson claims its GT-9500 can recognise 68 thousand million colours – and each one's got its own name.

If your budget is more restricted, Devcom's Black Widow-1200 SP offers colour flatbed scanning for only £199. It's capable of scanning at a software-aided 1,200 dpi, with up to 16.7 million colours (24-bit). You also get image scanning and OCR software. Contact Devcom on 01324 825999 for more details.

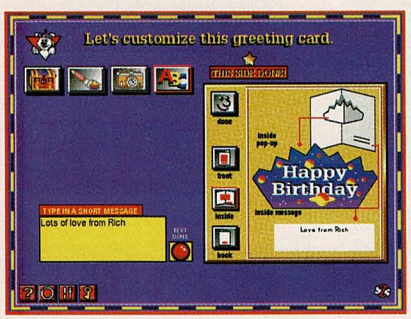
PrintPaks

Now this is *multi*-media. The PrintPaks range offers full sets of all the equipment and software you or your child need to create and print out your own designs onto a variety of media that moves beyond standard printer paper.

The *Awesome Iron-Ons Kit* enables you to print a design of your own onto T-shirts, canvas bags and other items of clothing. £34.99 gets you a CD-ROM including templates, clip-art and software to make your designs, plus full instructions. There are also transfer sheets and a kid's T-shirt to get you started – just print your own design on your transfer sheet and iron it onto the shirt.

Create your own designs or use a ready-made one from the disc; add your own lettering and presto – a instant T-shirt design.

At £24.99, the *Pop-Up Greetings Kit* has an equally self-explanatory title: you can use it to make your own greetings cards, including ones with 3D "pop-up" effects inside. Again, everything you need is contained in the pack. There's a CD-ROM of graphics software, clip art and templates, plus cards, envelopes and a roll of double-sided sticky tape as a special tribute to the TV show *Blue Peter*.



PrintPaks enable you to get creative and design your own T-shirts or greetings cards. Here we're making a birthday card.

Both packs are designed to be easy-to-use – and you can get £9.99 refill packs for either kit whenever you are in need of more supplies. And just think of all the time and money you'll save on shopping for greetings cards and T-Shirts...

You'll need an inkjet printer such as a StyleWriter or HP DeskWriter, as well as your Mac, to be able to use the kits. For more details on the PrintPak range, contact PhotoPaks Europe on 0181 876 0880.

Mode

Vito Brevis is a most mysterious figure, considered by some to be a genius, painted by others as a madman. Tonight he's throwing an exclusive party, a night of surprises and magic attended only by the influential and fashionable. And you? You're about to gatecrash...

Mode is what its creators call an interactive "social drama" – we'd call it a soap opera. As you mingle with the party-goers, you could become embroiled in a romantic encounter, discover a crime or seek out the real reason the party's being held. It's up to you.

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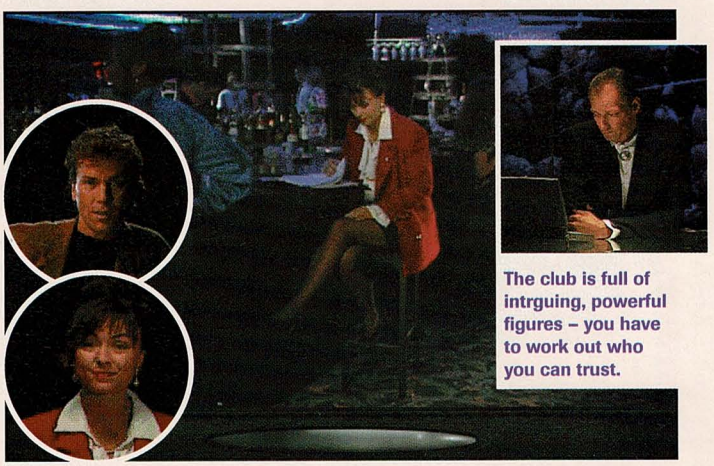
Although it's more *Dynasty* than *Corrie*, *Mode* opens up intriguing directions for interactive fiction. Perhaps there'll be an CD-ROM of *EastEnders* where you can set Ricky's Stupidity Level? *Mode* costs £46.99; contact UCA&L free on 0800 581028 for more details.



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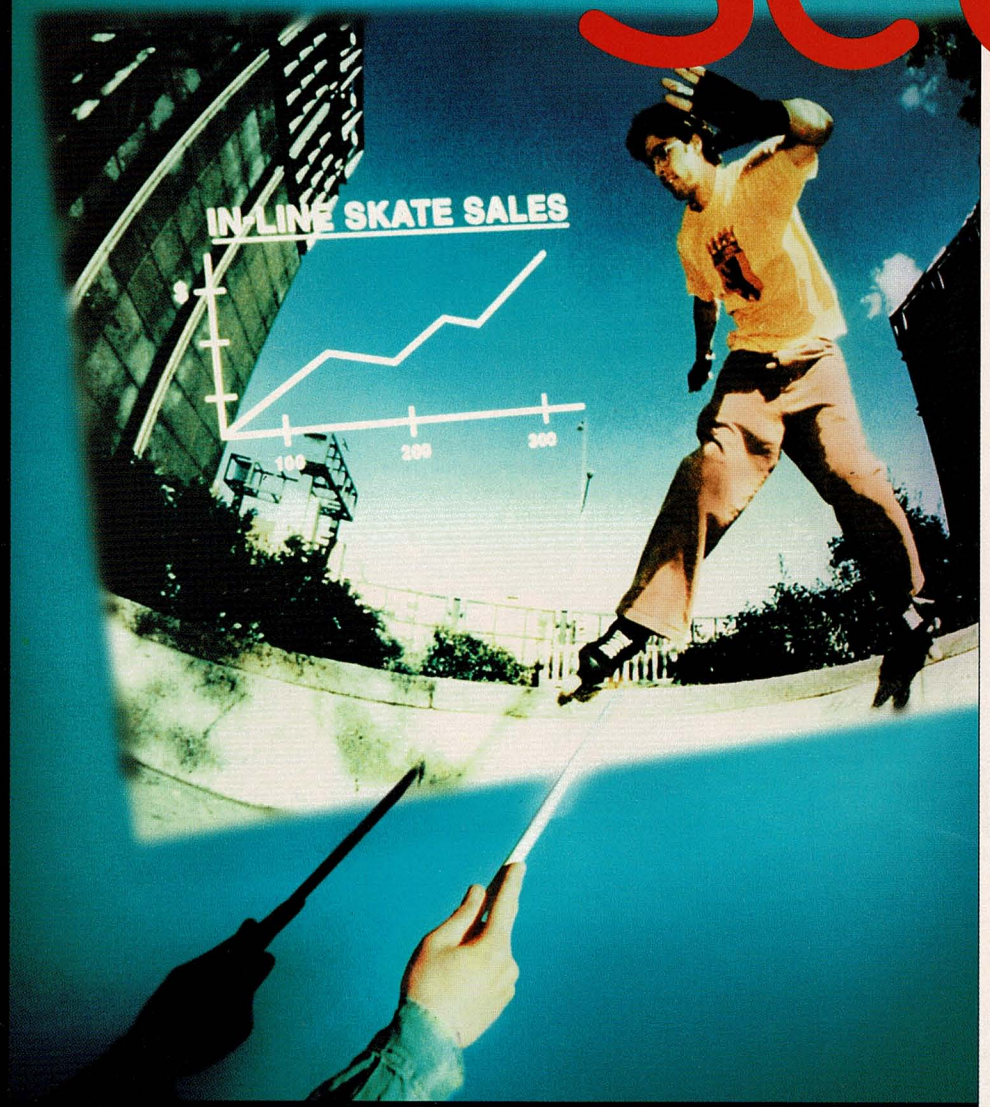
what if your PC could see?



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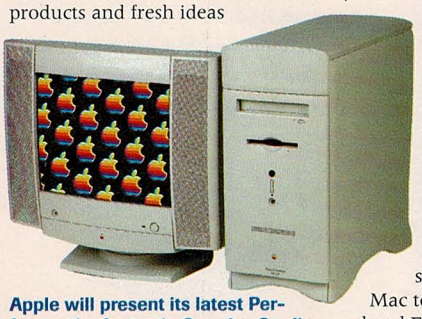
Welcome to Apple

Join thousands of Mac devotees at the UK's biggest Mac event of the year. MACFORMAT guides you round London's Olympia to see what's on.

Apple Expo is Britain's definitive Mac show. It runs from Wednesday 6 to Saturday 9 November at its regular haunt, Olympia's Grand Hall in Kensington, London – and as the Mac scene explodes with activity, Apple Expo '96 should be the most exciting of these shows in years.

There will be a flurry of new Mac-compatible computers shaking up the status quo. You'll see new products and fresh ideas from over 120 companies. Hardware manufacturers and software publishers, dealers and distributors – every firm that counts will be there, including MACFORMAT.

Apple Expo is also your chance to discover the hottest products for the Mac and pick up your choice at keen prices. The cream of Mac dealers, including MacLine, Callhaven, Mygate, Emerald and others, will be on the show floor, with exclusive special offers.



Apple will present its latest Performa, the fantastic Creative Studio.

While the huge, vibrant spread of exhibitors remains the heart of the show, Apple Expo '96 has more bonus attractions than ever:

- A full agenda of conferences and seminars gives you the chance to hear from top industry figures and discover the secrets behind the newest Mac technology. Apple's research head Ellen Hancock will present this year's keynote speech, and should have some revealing comments to make on the future of the Mac OS.
- Hands-On Workshops give you professional tuition in top programs like *QuarkXPress*, *Director* and *Photoshop*. The workshops are hosted by The Corps Business, a training organisation recommended by the likes of Adobe, Macromedia and Quark.
- The Internet Arena gives you the chance to try out the fast-growing Net. There'll be free sessions showing you the best of the Net, explaining its past, present and future. You can also find out how to make your own World Wide Web pages in a series of creative workshops.
- The Multimedia Arena shows how businesses can take advantage of interactive technology like CD-ROMs, to improve their training and promotional activities.
- The Electronic Imaging Centre guides you through the publishing process, showing how the Mac and companion devices like prepress systems, film scanners and digital cameras help the professionals create magazines, books and brochures.

DayStar's multiple-processor Mac clones are the fastest Macs around.

Texas's Power Computing comes to Expo for the first time this year.

See the new Macs

Of course Apple will be at the heart of Expo '96. But Apple's new computers aren't the only game in town any more. American firm Power Computing promises to

Visit Apple Expo and you could win a Casio digital camera worth £410!

MACFORMAT Casio QV-10A Competition

The Question: What is the name of the new colour printer from Casio? (See advertisement in this issue!)

Your Answer: .....

Hand this coupon or a copy in at the Casio stand at Apple Expo between Wednesday 6 and Saturday 9 November, 1996.

Title ..... First name .....

Surname .....

Address .....

.....

.....

Postcode ..... Daytime telephone .....

Data Protection Act: please tick here if you don't wish to be included on a mailing list. ❑

Casio's new QV-10A camera has all you need to take pictures digitally. Its colour LCD screen doesn't just make adjusting settings easy, it also enables you to frame your subject before you shoot and view the images stored in memory. The QV-10A can store up to 96 images at once, and you can even delete pictures selectively to free up memory. Then you can transfer images to your Mac, or produce glossy prints without a computer by hooking the QV-10A up to Casio's new printer.

The Casio QV-10A is worth £410, and you could win one, courtesy of Casio, when you visit Apple Expo '96. Just answer the question on the coupon to the left, fill in your details, and hand the coupon in at the Casio stand in the Electronic Imaging Centre at Apple Expo. All correct entries will go into a draw for the camera.

The Rules: Employees of Casio, Future Publishing and associated companies, and their families, are not eligible. Only one entry per family. No correspondence will be entered into, and entries must be handed in at Apple Expo as specified.

Expo '96

Umax's Pulsar: PowerMac-class machines from the scanner maker.

make an explosive official UK debut with its latest models, including the PowerTower Pro and PowerBase ranges, and lots of crowd-pleasing showmanship. Umax's full range of Pulsars and the new Apus will appear through distributor IMC – you should also see machines from Motorola and DayStar as they launch new computers for business.

Not that Apple is taking this new competition lying down – you'll be able to see the full range of Apple products at the show, as the company takes out a huge stand you can expect to be packed for much of the time. Due in November, the Apple Creative Studio is the firm's flagship Performa, offering an out-of-the-box set-up ready for video editing, multimedia and graphics.

The Home Office and Family Mac also offer complete packages to suit your needs and tastes – now you can even get a Mac in black! (See MACFORMAT 42 for more details.) Apple's most impressive range of PowerMacs to date will be available to try for yourself. You'll also see the first public showing of the latest portable PowerBooks and their innovative new features. If you're a Mac fan, Expo is the place to be!

Visit us at Stand H14

Come and meet the staff of MACFORMAT at Future Publishing's stand, H14 (modestly tucked away near the back somewhere, probably), take advantage of some exclusive subscription deals or try out our sister magazines *Computer Arts* and *.net*.

You'll also be able to hand in your votes in the MACFORMAT Reader Awards – see page 34 for details. And you could win a superb Casio digital camera worth £410 in the MACFORMAT Apple Expo competition! So pop in and drop around for a chat...

Show times

Apple Expo 1996 is open from 10am to 6pm on Wednesday 6 November, Thursday 7 November and Friday 8 November, and from 10am to 4.30pm on Saturday 9 November.

Entry is free if you have already booked, but otherwise tickets cost £15 on the door. If you're under 16, you can only come to Apple Expo on Saturday and you must be accompanied by an adult – but you'll be able to get in for free. Call the Expo Hotline on 0181 390 0203 for more details. All details are correct at time of going to press.

You can receive details of conferences, seminars and Hands-On Workshops by fax – dial 0336 406083 from your fax machine (calls cost 39p per minute cheap rate, and 49p per minute at other times).

Web address: http://www.apple-expo.com/apple/

Don't miss these...

All of the major Mac firms will be at Expo '96. Here's a taste of the top products you can expect to see at the Mac show of the year.

1 Apple's MessagePad hand-held devices are growing in reputation. Visit the **Newton Village** to see how you can access the Internet using a MessagePad and a cellphone. **2** Adobe will present its major autumn releases ***Photoshop 4*** and top desktop publisher ***PageMaker 6.5***. **3** Fractal Design will have the newest additions to its graphics range: ***Expression*** is a natural media drawing program, and ***Detailer*** enables you to add textures to 3D models. **4** **Macromedia** will show off its interactive Net software ***Shockwave***. You'll also see more of its mighty ***FreeHand*** *Graphics Studio* (see What's New, page 22). **5** Apple Expo is the premier show for business users – you'll see professional publishing systems from **Kodak** and **Agfa,** database and Internet packages from **Claris** and ISDN connectors from **Hermstedt** and **4-Sight**. **6** **Quark's** portfolio of products focuses exclusively on desktop publishing. *QuarkXPress* is the pro's choice for page layout, while *QuarkImmedia* enables you to publish onto CD-ROM or the Web. **7** The **Development Pavilion** reveals the behind-the-scenes technologies that enable programmers to create software. See the latest tools including **Java** and C++ packages from Metrowerks and QuickTime VR kits. **8** Exciting new hardware on display includes **Epson**'s Stylus Color 500 printer, **Kodak**'s growing range of digital cameras, and lots of scanners and cameras from **Nikon**. See you there! **MF**

The

The computing industry is going through some fundamental changes at the moment, and nowhere is that better symbolised than in the rise of the Internet. That rise signals an end of the "Operating System wars" of the '80s, and even though Apple emerged rather battered and bruised from the OS wars, the company has developed innovative new technologies that will both help define the future direction of computing and make Apple a major player again.

That's the message from Dr Gilbert F Amelio, Apple's Chief Executive Officer, who visited the UK last month as part of a major "charm offensive" to communicate his vision of the current and future direction of the company he took over some nine months ago.

Over that gestation period, he has brought in a whole team of new senior management (many from the company he previously headed – and also transformed – National Semiconductor Corporation), he has taken Apple by the scruff of its corporate neck and shaken up its business practices, sharpened its focus and sought to set it a clear direction and strategy.

He is pretty blunt about the need for a rethink. During the '80s, he readily admits, "Apple had an unbelievable track record of doing everything wrong, it seems like, and in particular missing the opportunity to license the OS early on. We are clearly working hard on fixing that today, but it's about a decade later than we should have done it."

Man in middleware

Today, though, the operating system is not the major issue, he says. "Over time there will be less discussion about the OS – not because the OS isn't important, but because the basic foundations of a good OS are pretty much known by everybody. Sooner or later, everybody is going to implement a good OS. The real value of future computers is going to be in the layers that ride on top of the OS.

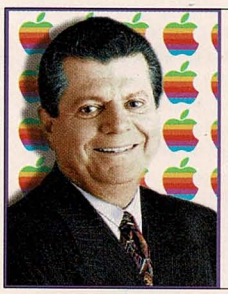
"Take the example of our QuickTime media player. It's not really an OS, and it's not really an application. So we call it 'middleware'. Middleware is where the action's going to be in the near future. People are

man at Apple's core

Since he became Apple's CEO in February, Gil Amelio has been the man in the hot seat. The company has suffered huge losses and faces a turning point in its history. Alex Summersby reports on Dr Amelio's battle plan.

going to develop technology in that layer – initially around the Internet, but then around other things. That is what's important about where we're going in the future and the Internet is symbolic of that."

By its very nature, Dr Amelio says, the Internet is "cross-platform. In fact, it's platform-agnostic," The issue, he insists, is not which OS or even which browser you choose. It is not even the fact that you can browse or find information. It's what you can achieve on a level beyond those things.



"We have to find a way to make the Internet pay."

Gil Amelio on future income

Dr Amelio compares the Internet today to the earliest days of personal computing. He owned a personal computer for a number of years, he says, before he actually learned to make effective use of it. "It was a great toy at first and I enjoyed it thoroughly, but it took me a while before I could figure out how it could really make me productive. The Internet is like that."

Human productivity is climbing at unprecedented rates, thanks to computers, except that in the case of the Internet "productivity is probably negative at this point." So the question is, when you've finished browsing, "I have access to essentially an infinite source of information. How do I manage that in such a way as to make me more successful, more productive?"

Knowledge managers

The answer has to lie in managing that information, making sense of it. Dr Amelio explained how two exciting new Apple technologies would be crucial to his "vision of knowledge management".

The first of these is a "content and textual search engine" currently code-named V-Twin (though that won't be the name it's released under). In a nutshell, it's an "intelligent agent" with the kind of artificial intelligence we explored in MACFORMAT last issue. You give it keywords, or possibly even write it a whole paragraph, and say "Find me stuff that's *like* this". It then goes off and searches the Net, and returns with what it's found – but here's the neat part – listed in order of how close it thinks what it's found is to what you've defined.

"But if it lists – as is frequently the case – 30, 40, 50, 100 articles that match," Dr Amelio explains, "and you say, 'My goodness, how will I ever wade through all this?' it will do the next wonderful thing, which is synthesise or create an abstract for those documents. So if you have a 100-page document and you want to abstract it down to two pages, V-Twin will do that for you." This means you can decide which item you really want to spend your time on – "or maybe you're content with the abstract."

The technology exists today, and it works. Dr Amelio has played with it. (That's his word. And you get the impression he really enjoyed it too – he even tried it out on *Hamlet*, and, he says, "it didn't do too bad a job", though sometimes it does come back with "garbage".)

The second new Apple "middleware" technology is MCF (Meta-Content Format). As Dr Amelio explains it, "This is all about providing structure to data. It's a database oriented technology. MCF could be for databases what HTML has been for text on the Internet."

Central to MCF is "the ability to structure databases so that if you have numerous databases, from the user's point of view they'll look like one database. If you're looking for something – say, on Bosnia, you just ask once, not as many times as you have databases, some of which you may not even know exist. The task of integrating all of that and presenting it to you is taken on by the technology.

"MCF will knit together dissimilar databases and it will appear to be a seamless extension of your Desktop and your Finder."

What's more, like V-Twin, MCF will "create relationships" by organising and structuring data for you. "If you're looking for one thing, around it are other pieces of information, and you have the opportunity to discover something you may not even have been looking for, but which might turn out to be very important."

You can get a sense of how MCF can work in *HotSauce*, previously known as "Project X". It's a representation of the Yahoo Internet directory in 3D, so that you have the impression of "flying" through a 3D environment with chunks of information floating around you – but not just randomly. The key aspect is that related items are clustered together. "Things that are alike are close together, things that are different are far apart." (For more on *HotSauce*, see this issue's News pages.)

It's easy to see how getting information that's already structured and related can help you make sense of it, or "manage" it, in Dr Amelio's term.

His vision of Apple's future is tied in with this. "Where I see us a few years from now," he says, "is yes, we will have a very solid OS foundation. We will have long since integrated the Netscape browser, or the Microsoft browser or both into our Finder, so it is seamless and wonderful, and *Cyberdog* will be there helping you to do all the information management you want to do. But where a lot of the value is going to be is in middleware like QuickTime Media Layer, *Cyberdog*, OpenDoc technology and all of that stuff that sits on top of the OS but below the application."

Dr Amelio believes that Bill Gates has also recognised the importance of this "middleware" layer, and that this explains what the press have been calling "the great awakening at Microsoft about the Internet, but none of the articles I saw really explained what was so important about it.

Bill Gates awakens

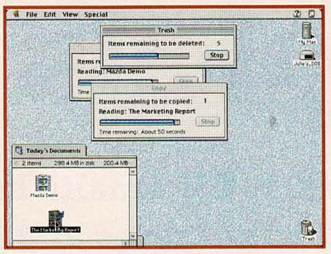
"The shift in the Internet gave rise to the possibility of creating a whole new standard which could be independent of what Microsoft wanted to see happening – that is, independent of its proprietary product. And that model frankly could have made Microsoft technology largely irrelevant. It was Gates's realisation that if he did not compete in an architectural sense in the Internet, Microsoft could lose a significant amount of economic power in the marketplace. The dominance that Microsoft has today was at risk.

"Microsoft's ability to perpetuate Active X as its framework technology is far more important than anything it will do on the Internet. Conversely, what the rest of us do in the industry – Apple, IBM, Motorola, Netscape, Oracle and Sun – in response to that is equally critical. The position we've taken is that standards should be completely open. That's what's really important about the Microsoft awakening – it's the competition at that layer. If they don't dominate it, at least they want to have a major say-so in how that middleware layer evolves in the future.

"We have a knack for doing things like QuickTime."

Gil Amelio on Apple's strengths

***HotSauce* or Project X is a taste of the technologies that Dr Amelio says will help you manage information.**



"Are there aspects of Copland that are good? Of course. Incredibly good. And we will implement those."

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"Whether it's with Motorola, IBM or Netscape, a lot of what I'm trying to do is build linkages, so ultimately our users have not just a great PC but a great total solution available to them."

"If you're looking for some universal solution, we're not it. And by the way, I don't think the other guy is either."

"Apple is pretty well equipped to compete at this layer," Dr Amelio concludes. "If you look at the things we have done successfully, I would dare say many of those things fall into this category. We have a knack for doing things in this middleware area, like QuickTime, which has been very very successful. As the architecture of computing moves forward I think we'll have the opportunity to emerge as a significant player in this new battleground."

"Let's pick what we do and let's do it incredibly well."

Gil Amelio on marketing strategy

But, I asked Dr Amelio, if the standards are completely open, how does Apple make money out of them?

In answer, Dr Amelio used the analogy of "the railways of 100 years ago. When each of the barons had their own gauge track, you had a certain level of economic activity, but it wasn't until they standardised that the real economic power of the railroad emerged. It's exactly the same story with telephony standards. Monopoly as a strategy has never worked." You don't try to lock users into a proprietary standard, but you "have to compete in the good old fashioned way. We just have to make better boxes with more innovative technology, which are more pleasing to use and less costly without expecting our users to pay the penalty of lock-in. When we do something like QuickTime, we need to make it cross-platform and ultimately we need to charge for it."

Just as Netscape has started charging for its browser, Apple will have to come up with some way of charging for its technologies. It may be licensing, or something more radical. As Dr Amelio puts it, "Why should you only pay for the OS and the applications? You do and you don't question that any more. Maybe we'll start giving the OS away for free and we'll charge for the middleware. The business model is going to have to evolve along with the technology."

Dr Amelio doesn't yet have the answer, but he does say, "If the evolution going on means anything at all, that's key to our long-term prosperity. We have to find a way to make that stuff pay." The Internet cannot stay cost-free, he insists. "Forget what Apple does or doesn't do – it will not stay free. People will start to have subscriptions. There's a lot of sites on the Web now that you have to pay to join. I think you'll see that proliferate – as sites become compelling enough and attractive enough, people will be willing to pay for them."

Battle lines

This area, in Dr Amelio's view, is "where the battle is for the immediate future." But the question is still inevitable: does Apple have an OS right now which is a firm enough basis for all this?

Dr Amelio acknowledges that Mac OS 8 (AKA Copland) won't be enough. Parts of it, he says, are "incredibly good, and we will release those as they're available. But at this point, we have to do something better than Copland." He re-emphasises, though, that "Copland is not the end-all of what this is about." Operating systems are not the issue, and he won't be drawn into speculation about Apple adopting the new PowerPC-based operating system Be OS (except to say that "given the territory they're in, relative to where we are, it's sort of inevitable that we'll probably do some things together").

There's more to it, after all, than just grabbing the OS of the hour. Dr Amelio touched, for instance, on the issue of compatibility. "We've always felt a sense of obligation to our users," he says. "We figured out that on our last release of the OS (forget Copland – the *last* release), we were supporting a possible *hundred thousand* possible configurations – that is, there's 100,000 different ways you could implement this OS in the system," and Apple had to support all of them! "Clearly that's getting to the point where it's being crushed by its own weight.

"The question is, how do you solve it? You have to solve it with technology, like you always solve these things with technology. I've always said, great technology makes things *simpler*. That's what the Macintosh did when it first came along – at least by re-ordering the underlying complexity so that from the user's point of view there was a simplification."

Hard questions

Hardware too, says Dr Amelio, "will continue to be important. In fact, if anything, I'd like to see us be a little more innovative in certain areas as a way of carrying value. I've explicitly said that industrial design is going to be one of our 'Distinctively Superior User Values'.

"But I hasten to add that we are not going to try to be all things to all people. That is something we can't afford to do." Apple must cut back the number of different Macs it produces. "I'm not talking about product lines but 'core products' where the innards are essentially consistent, though the externals may appear very different. What was costing the company money was not that we had 200 different flavours out there; it's that the core of each of those was different, and the amount of engineering and resource and quality control and all that is where all the cost is.

"My notion is that we're going to get down to four or five cores – no more than that – and support those. On the outside you may see even more variety, the way it's packaged. But it's the same basic engine."

And Apple's market share? "Market share is important, but the more you chase it the more difficult it is to get. You don't get market share by chasing it, you get market share by doing incredibly good solutions that delight your customers, and then by focusing 100% of your energy on that you wake up one morning and you have more market share. Let's pick the things we're going to do, let's do them incredibly well and the market share will take care of itself."

A man in charge

Dr Amelio delivers his message with conviction – and yes, with charm. He looks very like you expect a successful American executive to look: he's 52, a little under six feet tall, heavily-built but not obviously overweight; he is well-groomed and wears shirts monogrammed with a discreet "GFA" on the cuff. He is certainly not a flamboyant character; he speaks softly, but there's steel in his eye, and when he warms to his subject you detect the kind of intensity that makes you remind yourself never to get him mad at you.

What soon strikes you is his sharpness and his keen grasp of the technical issues. And no wonder – he has a PhD in physics and holds 16 patents; he was co-inventor of the charge coupled device, the gadget that is at the heart of most video cameras and makes digital photography possible. This is not just a businessman. At the same time, he speaks of himself as a fan of the Mac. "I have been an Apple and Mac user since the earliest days – 16, 17 years ago. I still think of myself much more as a customer than as the boss, and I think I can be critical where we need to be."

Critical he may be, but with his background he also understands exactly what is needed to address the issues he identifies. Listening to him, you come away reassured that Apple is in capable hands. **MF**

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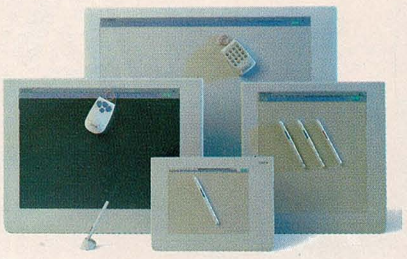

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You've heard Dr Amelio; what do *you* think? Tell us and win a binder. Write to: Alex Summersby, AppleTalk, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

Pulling no punches

My 12-year-old son uses a Mac at home and Windows 95 based systems at school. I've never shown him how to navigate his way round the Mac, yet he learned in less than 20 minutes. He finds Windows a cumbersome, ill-conceived and bug-ridden jumble (my words; he describes it simply as "crap"). For over a year he has mounted a campaign to persuade the school to junk its PCs in favour of the original and best GUI system. Some chance when few people in the marketplace have an opportunity to try a Mac for themselves.

The reason why people are buying Windows-based hardware and software by the container-load is because Apple has allowed them to. If prospective PC buyers aren't aware of the Mac's strengths, it's Apple's own fault.

If the Mac is to see in the new millennium, Apple has to start shouting from the rooftops about the absolute and indisputable superiority of its products. No faffing around on the periphery and relying on its reputation. What is needed is a high-profile marketing campaign that pulls no punches and goes straight for the proverbial short-and-curlies.

The Mac is better. It's easier to use. And it was there first. Bill Gates hasn't matched the Mac OS – yet. If Apple doesn't get its act together in the next two years, it'll be but a fading memory come the turn of the century. I, for one, will be sorry.

Colin Barrett
Milton Keynes, via FutureNet

Not that I want to encourage this gratuitous PC-bashing for one moment, but our kitchen at work is next to Future Publishing's PC reader help-line office, and anyone making coffee can't help but overhear some of the phone calls. All I can say is: if they had the remotest idea what they were getting into, why would anyone ever choose a Wintel PC?

The heart of the matter

So, Apple is going to release System 8 or Copland in pieces, right? Come on, Apple, give us a *completely new* operating system. If Mac OS 8 finally arrives in pieces, that means we will have the new technologies to play with, but nothing powerful enough to handle them. I am referring to the heart of Mac OS – some parts of it are still prehistorical, such as background processing, real multi-tasking, multi-threading, Virtual Memory handling, etc. With VM turned on (or *RAM Doubler* installed) it can't even play a MOD music file or run a screensaver without "jumping"...

Tourtouras Thanos
Greece, via FutureNet

*Okay, so the Wintel world has got **something** going for it...*

Goo: a correction

Goo-d Heavens above. I read your Mac Buyer's Guide [MACFORMAT 42] with a great deal of interest. It was a pleasure to see the mumbo jumbo broken down into plain English – something your magazine excels at.

One point I would like to raise is that the Apple Creative Studio bundle does not contain a full version of *Kai's Power Goo*, as suggested in your article. In fact it includes only a cut-down version and omits entirely the more powerful and creative Goo effects and Fusion components of the full product.

Kai's Power Goo is a brilliant program which in its complete form provides a great deal of fun.

Simon Mehlman
Principal Distribution

*The next paragraph in our review did say that "every one of the programs is a 'junior version' of an industry-standard professional application", but this point was not clearly made with reference to **Goo** in the paragraph that actually listed the software in the bundle. We're happy to set the record straight and apologise for any confusion.*

Bad practice

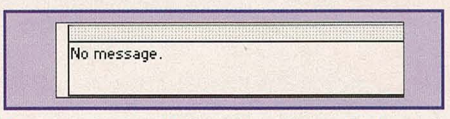
I recently moved from the PC to Mac, and so far have been very happy with the the stability of the system, the general feel of the system, its maturity and consistency.

One of the things which always annoyed me on the PC was that installation routines would interfere with the settings of the machine, and it was a delight to me that on the Mac, after installation of sample software, there would be a folder entitled "for your System" or something similar. However with your last CD there was a demonstration version of *Flight Unlimited* which failed to follow this wise path, and without warning, proceeded to update the contents of my System folder – no options, no "select items to be installed" etc, no list of what will be installed.

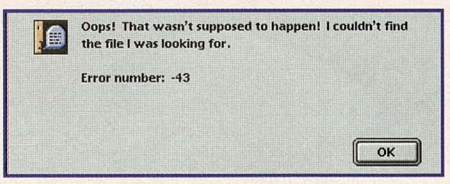
After installation of this product, I found a copy of Sound Manager and one or two other things in my Control Panels folder. This was an *earlier* version than the one I had installed already.

Before installing this demo, my 7500 had behaved impeccably, with each problem being traceable to my

Silly Things Your Mac Says, number 451 in a seemingly endless series. In fact, it's not just your Mac itself but the various programs you run on it that give you the messages you see, as this one from Tony Spalding of London SW2 reminds us...



Programs on your Mac receive error codes from the System in much the same way as you do when things go wrong, and they have to be programmed with a message to display when they receive any particular code. Of course, there are thousands of possibilities, so it's no surprise if they can't cope with a few... This one, Tony Spalding says, is "from a piece of shareware, which flashed the menu bar alarmingly and then coughed this up."



Anthony Seng sent this Silly Message by e-mail from Australia – it's from a shareware utility called *Font-o-rama* on a past MACFORMAT CD-ROM. "At least when this application stuffs up," Anthony says, "it does it with a sense of humour... even if one still gets a meaningless error code."

Two more MACFORMAT binder winners: first, a complete (one, two, three... *six*-course) meal from Scotland, sent in by Gordon Harrington of Glasgow; and next, what happens when you've had such a meal, from Andy Taylor of London NW6. Remember, whenever you write to MACFORMAT an eye-catching postcard could win *you* a binder too!

actions while learning the machine. Since installing this product I have had type 11, type 10 and type 42 errors peppering my screen, with an unhealthy number of type 1 for leavening.

Can I urge you to press writers of installers to stop this process of uncontrollable installation. Not only is it annoying, but can start a spate of troubles, as in my case. What makes them feel that they know what's best for every one of the machines upon which their software will ultimately be installed? Old versions of System software, overwriting the newer ones – a recipe for disaster!

Laurie Climo
Taunton, Somerset
via FutureNet

*Good point. many installers offer a "custom install" – hold down the **[option]** key when you run the installer and you can select what gets installed and what doesn't. Why don't they all?*

The friendly face

In your big Internet service providers feature (MACFORMAT 39) you failed to mention anything about local providers.

These relatively small firms usually specialise within the local call area and have a Cybercafé. It's always easier to go to a shop and moan to the staff about your e-mail not getting any where, than trying to phone a customer support line (within office hours only) which is always busy. The staff in the café are usually helpful, and there's nearly always a resident Mac expert. If you're really stuck, you can take your Mac in to the café and see if they can help you get the software set up. (Try and do that with a CompuServe connection!) The best thing about local providers is the cost. (I only paid £12 set-up and £11 a month plus calls, with no online time charges.) Okay, so you don't get all the bells and whistles of (say) a CompuServe connection. Who needs them anyway there's the whole Internet to explore?

To find local providers, all anyone has to do is either look in MACFORMAT's sister publication *.net* (anyone thinking about getting on-line should read this anyway) or look under computer services in the Yellow Pages.

Antony Ellam
via FutureNet

Cybercafés are invariably run by enthusiasts, and for someone just starting out there's often nothing better than being taught the ropes in person.

"Porn" Postscript 1

The current fuss about pornography on computers is part of a push to bring the Internet under government control. It has nothing to do with sex or religion, but everything to do with politics, and I think you would be wiser to draw your readers' attention to this important fact, instead of encouraging an obsession with erotic red herrings (so to speak).

Tony Prince
Australia, via FutureNet

Maybe so, but how are they going to do it? The Chinese government reportedly stamped out the corrupting influence of satellite TV by tearing down satellite dishes, but a computer connected to the Net is a lot harder to spot. It's like controlling what people read – many have tried, but nobody's succeeded for long.

"Porn" Postscript 2

During the "Great 'Porn' Debate" a lot of people have said how awful it would be if children discovered this "porn" *[a text-based "strip-poker" game called **Strip-Mac**]* on the MACFORMAT CD. Well, we have.

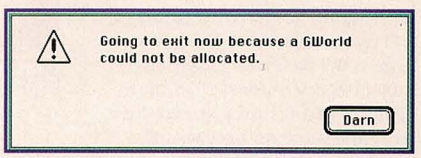
I'm 14 – not a small child, but a child. What do I think of *Strip-Mac?* Nothing. I found it on the CD and looked at with my friend; we thought it was stupid and we certainly didn't think it was any sort of porn. If I was a parent I would be more worried about the magazines, videos and CDs on the top shelf at the newsagent and the stuff being handed round on disks at school.

I could get hold of hard core porn for my Macintosh without trying. You can get it off the front of magazines at the local shop, or off the Internet, or most easily at school. There is no middle school that is free of computer porn.

Rather than you parents speaking out against porn you chose to speak out about a stupid program that doesn't affect us children in the slightest, let alone in the way all you adults think. Well, us kids don't think anything of it, so why do you adults?

Tom Anthony
Biggleswade, Bedfordshire
via FutureNet

Thanks, Tom. I'm sure that's really set a few parents' minds to rest...! **MF**



This one is from Mark Maranta of Ontario, Canada – "a little message I encountered the other day while doing on-site training." Has your Mac given you a silly message? Grab it by hitting [command] [shift] 3 and send it in to us! Genuine messages only, mind you. I'm not convinced any Mac ever said "I love you", "Get off my mouse" or "Come and have a go if you think you're hard enough!" (You know who you are, in West Yorkshire!)

How to get in touch with MACFORMAT

- **Send letters to the address on page 32 – the shorter yours is, the better its chances of being printed. If you'd like a letter included in the Readers' Corner on our CD-ROM, make sure it contains no defamation or obscenity, then send it in as a *SimpleText* document on a disk marked "MACFORMAT Readers' Corner". Include your name and address, and note that we can't return your disk.**
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Vote now for *your* favourite products

What makes the Mac great? Cast your vote for the best hardware and software in the 1997 MACFORMAT Reader Awards, and you could win a MACcelerate graphics card worth £586.

No-one is more dedicated to his computer than a Mac owner, and we know that as a MACFORMAT reader, you're part of the most passionate group of all. The 1997 MACFORMAT Reader Awards are your chance to tell everyone about the things you admire the most.

MACFORMAT's Reader Awards celebrate the best products available for the Mac today. No other Mac awards give a voice to the people who use these products the most. Here *you* say which hardware hits hardest and which software shines brightest.

We've assembled 16 categories for you on the form opposite, divided into hardware, software and creative products. All you need to do is tell us which product in each category outdoes its rivals to offer the best features, the freshest ideas and the most exceptional value for money.

Going for Gold

We'll also announce three extra awards. The MACFORMAT Gold Awards will go to the products that poll the highest number of votes within each section – Hardware, Creative and Software. The MACFORMAT Gold is the ultimate seal of approval, given by the people who count the most: the people who use the Mac every day.

Prize-winners

If you vote, you'll also get the chance to win a MACcelerate 180MHz upgrade card worth £586 (£499 plus VAT), courtesy of Harwood Computers. The MACcelerate boosts the speed of PCI-equipped PowerMacs to new highs. A PowerPC 604e chip running at 180MHz replaces your existing processor, making all your software run faster and smoother. Get the performance you've been dreaming of from your Mac. (If you are the first person to be drawn and your Mac is not able to use it, you'll receive a Harwood credit note to the equivalent value.)

We have one MACcelerate card to give to the first person we draw from the votes we receive by the closing date. And ten more readers will receive a 12-issue MACFORMAT subscription (or an extension to your existing subscription).

How to vote

Any product you vote for must have been available to buy during 1996, whether it's brand-new this year or an enduring classic. We've suggested candidates for each category, but you're under no obligation to pick anything we've listed.

Send your completed and sealed form to: **MACFORMAT, Future Publishing, Freepost, Bath BA1 2XF.** If you're visiting Apple Expo, you're welcome to come by the MACFORMAT stand and hand in your form there. The closing date for your vote is Friday 22 November, so don't delay – vote in the MACFORMAT Reader Awards now. **MF**

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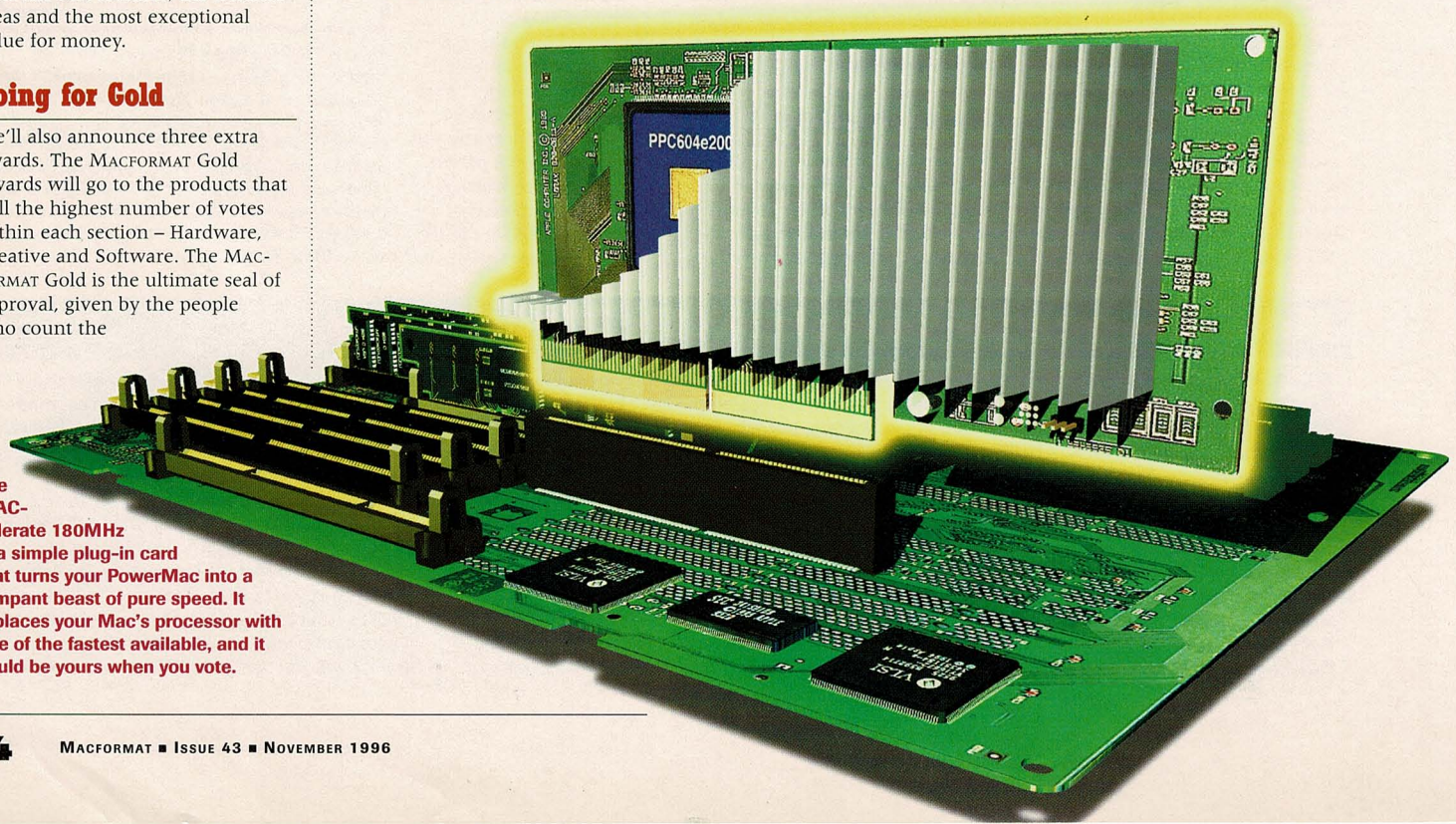

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Use this form to vote for the products *you* judge to be the best of 1996. Tick *one* box in each category only. We've listed the highest-rated products from our reviews to jog your memory, but you do *not* have to select anything named here – to vote for something else, just tick the "Other" box and write in its name (in legible capitals please!). Only products *available in 1996* are eligible. You don't have to include a name and address, but if you don't, we won't know where to send your prize if you win! Then cut out this form along the dotted line, fold so the address is showing, tape closed, and post – no stamp required in the UK!

MACFORMAT Reader Awards

MACFORMAT Hardware Awards

1 BEST MAC

1 ☐ Performa 630 2 ☐ Performa 5200 3 ☐ Performa 6200
4 ☐ Family Mac 5 ☐ Home Office 6 ☐ Creative Studio
7 ☐ PowerMac 7200 8 ☐ PowerMac 7600 9 ☐ PowerMac 8200
10 ☐ PowerMac 8500 11 ☐ PowerMac 9500
12 ☐ Other.....

2 BEST STORAGE DEVICE

1 ☐ Electronique d2 AV hard disk 2 ☐ Jaz Drive
3 ☐ Olympus PowerMO 4 ☐ Performance Direct hard disk
5 ☐ Xyratex 5000 MO 6 ☐ SyQuest EZ Drive
7 ☐ Zip Drive
8 ☐ Other.....

3 BEST MONITOR

1 ☐ AppleVision 1710 2 ☐ Hitachi17MVX Pro 2
3 ☐ Sony 15sfII 4 ☐ Sony 17sfII
5 ☐ Other.....

4 BEST PRINTER

1 ☐ Apple StyleWriter 1500 2 ☐ Apple StyleWriter 2500
3 ☐ Epson Stylus Pro 4 ☐ HP LaserJet 5MP
5 ☐ HP DeskJet 340 6 ☐ HP 870cxi
7 ☐ Other.....

5 BEST PERIPHERAL

1 ☐ Apple QuickTake 150 2 ☐ Kodak DC-20 digital camera
3 ☐ Microtek Scanmaker E3 4 ☐ Visioneer PaperPort scanner
5 ☐ Global Village Platinum modem
6 ☐ Motorola 3400 modem
7 ☐ Other.....

MACFORMAT Creative Awards

6 BEST DRAWING OR PAINTING PROGRAM

1 ☐ Dabbler 2 2 ☐ FreeHand 5.5 3 ☐ Illustrator 6
4 ☐ Kai's Power Goo 5 ☐ Live Picture 2.5 6 ☐ Painter 4
7 ☐ PhotoDeluxe 8 ☐ Photoshop 3 9 ☐ xRes 2
10 ☐ Other.....

7 BEST 3D PROGRAM

1 ☐ Bryce 2 2 ☐ Extreme 3D 3 ☐ Infini-D 3.5
4 ☐ Ray Dream Studio 4 5 ☐ StrataStudio Pro 1.75
6 ☐ Other.....

8 BEST DIGITAL MEDIA PACKAGE

1 ☐ Cubase VST 2 ☐ FreeStyle 3 ☐ Logic 2.5
4 ☐ Premiere 5 ☐ VideoShop
6 ☐ Other.....

9 BEST PRINT PUBLISHING PROGRAM

1 ☐ PageMaker 6 2 ☐ QuarkXPress 3.3 3 ☐ UniQorn
4 ☐ Other.....

10 BEST NEW MEDIA PUBLISHING PROGRAM

1 ☐ Apple Media Tool 2 ☐ Astound 2 3 ☐ BeyondPress 2
4 ☐ Director 5 5 ☐ HyperCard 2.3 6 ☐ PageMill
7 ☐ SuperCard 2.5
8 ☐ Other.....

MACFORMAT Software Awards

11 BEST OFFICE AND PRODUCTIVITY PROGRAM

1 ☐ ClarisWorks 4 2 ☐ Excel 5 3 ☐ Expresso
4 ☐ FileMaker Pro 3 5 ☐ Let's KISS 6 ☐ Word 6
7 ☐ Other.....

12 BEST UTILITY

1 ☐ Adobe Type Manager 2 ☐ Conflict Catcher 3
3 ☐ Dogz 4 ☐ Norton Utilities
5 ☐ Now Utilities 6 ☐ Personal Backup
7 ☐ Other.....

13 BEST INTERNET PROGRAM

1 ☐ Claris Em@iler 2 ☐ Microsoft Internet Explorer
3 ☐ Netscape Navigator 4 ☐ Snap Mail 2
5 ☐ WebArranger
6 ☐ Other.....

14 BEST MULTIMEDIA TITLE OF 1996

1 ☐ DK World Reference Atlas 2 ☐ Encarta 96
3 ☐ The Logical Journey of the Zoombinis
4 ☐ Makers of the 20th Century 5 ☐ Music Central 96
6 ☐ PB Bear's Birthday Party 7 ☐ Redshift 2
8 ☐ Other.....

15 BEST GAME OF 1996

1 ☐ Apache Longbow 2 ☐ The Dig 3 ☐ F/A-18 Hornet 2
4 ☐ Full Throttle 5 ☐ IndyCar Racing II 6 ☐ Marathon 2
7 ☐ Other.....

16 BEST SHAREWARE PROGRAM

1 ☐ Compact Pro 2 ☐ Disinfectant 3
3 ☐ GraphicConverter 3 4 ☐ Greg's Buttons
5 ☐ Maelstrom 6 ☐ StuffIt Lite
7 ☐ Other.....

MACFORMAT Gold Awards 1996

The 1996 MACFORMAT Golds will go to the products that receive the highest number of votes within each of our three groups:

Best Hardware Product
Best Creative Product
Best Software Product

Please enter your name and address below, so we know where to send your prize (see opposite) if you win:

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Surname.....

Address .....

.....

..... Postcode .....

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We must receive your vote by Friday 22 November, 1996.

Are you already a MACFORMAT subscriber? ☐ Yes ☐ No

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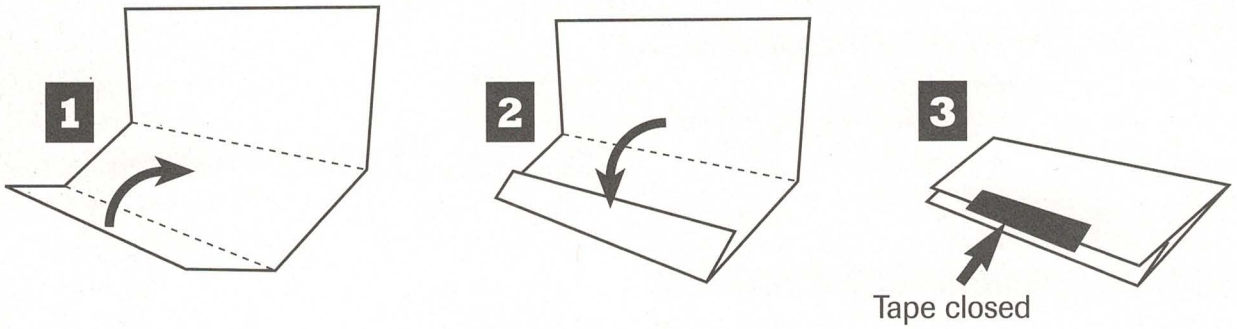

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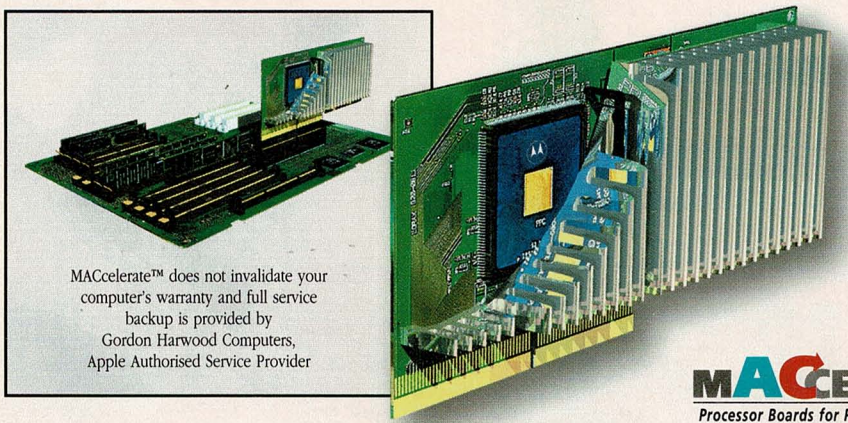

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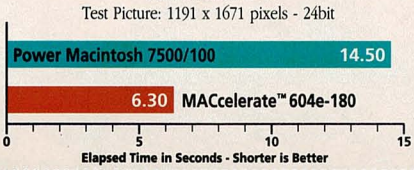

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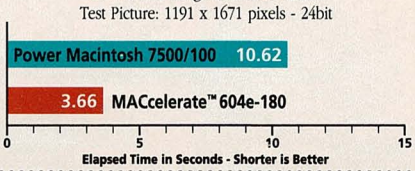

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PERFORMA PLUS Disney PACK 3 ENGLISH

6320, 12/1200,CD

£899

JUST £7.13 PER WEEK

- 120MHz Power PC 603e
- 8Mb RAM/1.2Gb Hard Drive
- Keyboard Options • Eight Speed CD
- System 7.5 • Disney Plus 3 Software

RAM	HD	MODEM	MONITOR	CD	TV	K/B	Price
12Mb	1.2Gb	✘	✘	✔8	✘	✘	£899
12Mb	1.2Gb	✘	14" M/S	✔8	✘	✔	£1159
12Mb	1.2Gb	✘	15" M/S	✔8	✘	✔	£1209

LARGER RAM!!!

FREE DK SAMPLER

NEW RANGE

PERFORMA 5400

NEW BLACK MAC! The 180MHz Family Macintosh is THE new Black Version Mac!

- 160/180MHz Power PC 603e • 16Mb RAM/1.6GB Hard Drive
- Keyboard Option • 8 Speed CD • 15" Built-in Monitor • System 7.5.3

THE APPLE FAMILY MACINTOSH

MHz	RAM	HD	MODEM	MONITOR	CD	TV	K/B	Price
160	16Mb	1.6Gb	✔28.8	15" Int.	✔8	✘	✘	£1379
160	16Mb	1.6Gb	✔28.8	15" Int.	✔8	✘	✔	£1429
180	16Mb	1.6Gb	✔28.8	15" Int.	✔8	✔Vid	✔	£1699

BLACK MAC

FREE DK SAMPLER

NEW RANGE

PERFORMA 6400

- 180/200MHz Power PC 603e • 16/24Mb RAM, 1.6/2.4Gb Hard Drive
- Keyboard Option • 8 Speed CD • Monitor Options
- System 7.5.3 • HOME OFFICE or CREATIVE STUDIO SOFTWARE PACKS

THE APPLE HOME OFFICE

MHz	RAM	HD	MODEM	MONITOR	CD	TV	K/B	Price
180	16Mb	1.6Gb	✔28.8	✘	✔8	✘	✘	£1199
180	16Mb	1.6Gb	✔28.8	14" M/S	✔8	✘	✔	£1479
180	16Mb	1.6Gb	✔28.8	15" AV	✔8	✘	✔	£1599
200	16Mb	2.4Gb	✔28.8	✘	✔8	✘	✘	£1469
200	16Mb	2.4Gb	✔28.8	14" M/S	✔8	✘	✔	£1749
200	16Mb	2.4Gb	✔28.8	15" AV	✔8	✘	✔	£1879

THE APPLE CREATIVE STUDIO AVAILABLE SOON!

MHz	RAM	HD	MODEM	MONITOR	CD	TV	K/B	Price
200	24Mb	2.4Gb	✔28.8	✘	✔8	✔Vid	✘	£CALL

FREE DK SAMPLER

POWERMACS

FROM...

£1079

JUST £8.54 PER WEEK

- PCI Technology
- RISC CPU
- NOW up to 200MHz!

NEW MODELS AND LOWER PRICES!!!

MODEL	MHz	RAM	HD	CD	Price	
7200/90	90	8Mb	1.2GB	✔	£1079	WHILE STOCKS LAST!
7600/120	120	16Mb	1.2Gb	✔	£1799	
FREE MS OFFICE 4.2.1 7600/132	132	16Mb	1.2Gb	✔8	£2149	
8200/120	120	16Mb	1.2Gb	✔	£1299	WHILE STOCKS LAST!
FREE MS OFFICE 4.2.1 8200/120	120	16Mb	1.2Gb	✔8	£1549	
8500/120	120	16Mb	2Gb	✔	£2049	WHILE STOCKS LAST!
8500/120 Including upgraded 150MHz Apple CPU Card	150	16Mb	2Gb	✔	£2349	
8500/150	150	16Mb	2Gb	✔	£2549	WHILE STOCKS LAST!
8500/180	180	16Mb	2Gb	✔8	£2999	
9500/132	132	16Mb	2Gb	✔	£2149	WHILE STOCKS LAST!
9500/150 Including Apple Graphics Card	150	32Mb	2Gb	✔	£2649	
9500/200 Including Apple Graphics Card	200	32Mb	2Gb	✔8	£3299	
9500/2x180 Includes TWO 180MHz CPUs and Apple Graphics Card	2x180	32Mb	2Gb	✔8	£3799	

CALL FOR PACKS WITH MONITORS AND KEYBOARDS NOW!

POWERBOOK

5300cs/100, 8/750

£1249

JUST £9.90 PER WEEK

NEW	5300cs/100 8/750 DS	£1249
NEW	5300cs/100 16/750 DS	£1310
WHILE STOCKS LAST!	5300ce/117 32/1100 AM	£3349

ALL 5300s include: ROUTE 66, MOBILITY PACK & 2 GAMES

POWERMAC DUO RANGE...	
DUO 2300c/100 8/750 AM	£1949
DUO 2300c/100EM 20/1100 AM	£2599

DS=Dual Scan Display AM=Active Matrix Display

POWERBOOK OPTIONS...

190/5300 8Mb Upgrade £89
190/5300 16Mb Upgrade £139
190/5300 Battery (NiMH) £59
190/5300 Carry Cases from... £20

POWERBOOK Special OFFER

FREE WITH 5300ce/117 POWERBOOKS...
• FREE 28.8 PCMCIA CARD TDK MODEM OR a...
• FREE STYLEWRITER 2200 Colour Printer

PERFORMAOPTIONS

FOR 630/5200/5260/5300/5320/6200/6260/6300/6320

- PERSONAL COMMS SOLUTION *(models without Ethernet)* FAX, ANSWERPHONE, & INTERNET etc... 14.4 version £109 28.8 version £179
- ETHERNET CARDS *(for models without Personal Comms Solution)*... Thin Co-Ax £59 UTP £59 AUI (requires adaptor) £59
- VIDEO-IN CARD - £89 VIDEO-OUT CARD - £219
- VIDEO-IN TV TUNER CARD - £219
- MPEG FMV VIDEO CD PLAYBACK CARD £175 *(only fits 630 models without a DOS Card)*
- D2 FM RADIO TUNER Only... £59
- APPLE INTERNET CONNECTION KIT - £47

NEW 5400 & 6400 RANGE

FOR PERFORMA 5400 AND 6400 MODELS ONLY

- VIDEO-IN CARD £59
- VIDEO-IN TV TUNER CARD £119
- COMMS SLOT II ETHERNET CARD £74

POWERMACOPTIONS

MACELERATE!

FANTASTIC NEW ACCELERATORS TO MAKE YOUR MAC FLY! for PowerMac 7500, 7600, 8500 and 9500 Models

166MHz £399
180MHz £499
200MHz £649

Available Soon CALL GH NOW!

Add extra Power to your PowerMac...

256k Cache DIMM (7500/8500/9500)	£76
512k Cache DIMM (7500/8500/9500)	£97
Apple RISC 604, 120MHz U/G (7500/8500/9500)	£425
Apple RISC 604, 132MHz U/G (7500/8500/9500)	£638
Apple 486, 66MHz DOS Card	£169
Apple 586, 100MHz, 8Mb DOS Card	£489
Apple Pentium 100MHz, 8Mb DOS Card	£610
Apple 3D Accelerator Card & 3D World Bundle	£279

Creditcharge

If you can't visit us personally, why not ask for an Application Pack for a convenient, flexible GH BUDGET ACCOUNT CARD. No deposit and repayments over convenient periods can be arranged by mail. Once established, you can purchase with your new card and leave existing credit card limits intact.

We supply all Government and Education departments along with Major PLCs. Call GH now for a rapid response to your Quotation requests!

Why don't you use our new... GH EMail Internet Address harwood@applelink.apple.com

'FAST-FAX' GH for a Rapid Response to your Quotation Requirements!

GETTING THE BEST FROM THE UK's FAVOURITE APPLE RESELLER...

PHONE GH... We welcome all major credit/debit cards with NO TRANSACTION SURCHARGES.

POST OR FAX... Please include your Name, Address and preferably daytime and/or evening telephone/fax number with your requirements. If using a debit/credit card include its number and valid from/expiry date (and issue number with Switch cards). Make cheques (please allow 7 days clearance), Drafts or P.O.s payable to Gordon Harwood Computers Limited.

GH PRICES... All UK and EC customers please add VAT at the standard rate of 17.5% to all prices. UK overseas Armed Forces Personnel may be exempt VAT - please ask for details.

DELIVERY... We offer prompt shipment with fully insured express delivery options throughout the UK, Europe and Worldwide at a very modest cost. If ordering by mail, please call to confirm delivery charges.

GH WARRANTY... Manufacturers' standard warranties apply or, ask about GH's comprehensive extended options which are always recommended for professional users to minimise costly down time - full details available on request.

GH PERSONAL FINANCE§ FACILITIES - INCLUDING AN OPTION WITH NOTHING TO PAY UNTIL 1997✦

✦ PERSONAL FINANCE - DEFERRED PAYMENT PLAN ✦ :FOR INDIVIDUALS VISITING OUR SHOWROOM PAYING A MINIMUM OF 10% DEPOSIT

♥OPTION 1: BALANCES OVER £2000 - PAY NOTHING MORE FOR 6 MONTHS (1997) OR, ♥OPTION 2: BALANCES OVER £1200 - PAY NOTHING MORE FOR 4 MONTHS OR, †OPTION 3: ON UNLIMITED BALANCES OVER £500 - CHOOSE OUR 'LOWER COST' FIXED TERM PERSONAL LOAN, 24.9% APR OVER 2 YRS, OR 21.9% APR OVER 3 YRS

♥OPTIONS 1 & 2 - *During the deferred period you can settle IN FULL (without finance charges) or continue your agreement with normal interest arrangements (ie. Direct Debit 27.8% APR, 2.07% Month - Payment Book 32.4% APR, 2.37% Month). And... for the first 6 or 4 months you'll also receive FREE Agreement Life Cover*

†OPTION 3 - *a Low Cost alternative 2 or 3 year agreement, for those who wish to spread the cost of their purchase over a longer period than 4 or 6 months.*

Written details available on request. §Subject to status and an £18 arrangement fee. Please contact us prior to visiting for Easy Application requirements.

GH BUSINESS FINANCE FACILITIES...

BUSINESS FINANCE : Weekly rates shown exclude VAT and are based on a fixed cost 3 Year Apple Commercial Credit Lease payable quarterly after an initial deposit payment. Available to all businesses (including recently established) making a minimum total purchase from GH of £750 - subject to status. FULL Details available on request.

Manufacturers' specifications and GH prices are correct at time of going to press; however, they may fluctuate and we therefore reserve the right to amend them - please confirm prices before ordering. This advertisement is an invitation to treat, not an offer to sell. Goods are not supplied on a trial basis. All transactions are subject to Harwood's Terms and Conditions of Sale, a copy of which is available on request. E.&O.E.

MONITORS

GH Budget 14" Multisync Monitor (.28)	£189
GH 15" Multisync Monitor (.28)	£239
Apple 14" MultiScan (.28)	£225
Apple 15" Multiscan (.28)	£269
Apple 15" AV Multiscan (.28)	£349
Apple 17" 1705 MultiScan (.26)	£514
Apple 17" 1710 TCO Trinitron MultiScan (.26)	£659
Apple 17" 1710AV TCO Trinitron MultiScan (.26)	£739
Apple 20" Trinitron MultiScan II (.26)	£1249
NEC 15" CromaClear Multisync (.25)	£399
Mitsubishi 17" Diamondtron Multisync (.26)	£599
Mitsubishi 21" Diamondtron Multisync (.30)	£1349
Sony 15" SX1 Trinitron Multisync (.26)	£299
Sony 15" SF2 Trinitron Multisync (.26)	£339
Sony 17" SF2 Trinitron Multisync (.26)	£549
Sony 17" SE2 Trinitron Multisync (.26)	£779
Sony 20" SF2 Trinitron Multisync (.26)	£1149
Formac 17" Trinitron Multisync (.26)	£469
Formac 17" Trinitron Multisync - HiSpec (.26)	£539

GH Prices INCLUDE Adaptors for non Apple Monitors FREE!

Ask us about VRAM (Video RAM) for your Mac...
to give your monitor higher resolutions, more colours etc.

KEYBOARDS

Third Party Design Keyboard	£40
Apple Design Keyboard	£59
Apple Extended Keyboard	£89
Apple Adjustable Keyboard	£139

PRINTERS

LASERS

Apple Personal Laser 300 - 300dpi Mono	£415
Apple Laser 4/600PS - 600 dpi Mono	£589
Apple LaserWriter 12/640PS New 600dpi Mono Laser	£1099
Apple Laser 16/600 - 600 dpi Mono	£1349
Apple Color LaserWriter 12/600PS 600 dpi Colour and Mono	£3999

INKJETS

Apple StyleWriter 1200 Mono 720 x 360dpi	£95
Apple StyleWriter 1500 Colour 720 x 360dpi	£CALL
Apple StyleWriter 2200 Colour 720 x 360dpi	£269
Apple StyleWriter 2500 Colour 720 x 360dpi	£269
Apple StyleWriter EtherTalk Kit	£145
Epson Stylus Colour 500 720 x 720dpi	£239
Epson Stylus Pro Colour - A4 720 x 720dpi	£329
Epson Stylus Pro XL+ Colour - A3 720 x 720dpi	£849
Epson Stylus Pro POSTSCRIPT RIP	£179
HP 600 DeskWriter Mono 600 x 300dpi	£149
HP 660C DeskWriter Colour 600 x 300dpi	£229
HP 820Cxi DeskWriter Colour 600 x 600dpi	£279
HP 870Cxi DeskWriter Colour 600 x 600dpi	£329
Tektronix Phaser 140 A4 Colour, Postscript, 8Mb	£999

PowerPrint Use parallel printers with Macs	£79
StyleScript Adobe PS RIP for Apple Colour SWs	£75

PRINTER CONSUMABLES

StyleWriter... I/II Portable/1200/1500...		
	Black Cartridge	£15
StyleWriter 1500	Colour Cartridge	£23
StyleWriter 2400/2500	Black Cartridge	£26
	Colour Cartridge	£34
	Black Ink Tank	£7
	Colour Tank	£13
Colour StyleWriter Pro	Black Hi-Capacity Cartridge	£9
	C, M, or Y Cartridge (ea.)	£8ea.
	CMYK - 4 Colour Set Cart.	£30
Epson Stylus	Black Cartridge	£11
	Colour Cartridge	£24
Epson Stylus II	Black Cartridge	£15
	Colour Cartridge	£22
Epson Stylus A4 Paper	360dpi Paper, 100 Sheets	£12
	720dpi Paper, 100 Sheets	£16
HP 340 DeskWriter	Black Cartridge	£18
HP 600/660 DeskWriter	Black Cartridge	£18
	Colour Cartridge	£20
Genuine Apple Toner Cartridges...		
For Apple LaserWriter 300, 320, 4/600		£49
For Apple LaserWriter 360		£81
For Apple LaserWriter 16/600		£90
Toner Cartridges - For MOST other Lasers stocked Too...		£Call

CD ROM DRIVES

FREE DK SAMPLER WITH ANY CD DRIVE

D2 CD 600e Quad Speed inc. Cables*	£164
D2 CD 1200e Eight Speed inc. Cables*	£189
Apple CD 600e Plus Quad Speed	£219
Apple CD 600i Plus Internal Quad Speed (Requires fitting kit - please call for details/price)	£189
Panasonic Double Speed inc. Cables* (*Standard Cables for Desktop Macs, call for PowerBooks*)	£89

SCANNERS

Apple Color One 600-27 Scanner	£399
Apple Color One 1200-30 Scanner	£499

UMAX

Model	Photoshop	Trans Adap	Price	
VISTA S6e	✘	✘	£239	PRICE CRASH!
VISTA S6e	LE	✘	£259	PRICE CRASH!
VISTA S6e	FULL	✔	£699	
VISTA S12	✘	✘	£399	PRICE CRASH!
VISTA S12	LE	✘	£419	
VISTA S12	FULL	✘	£519	
VISTA S12	FULL	✔	£844	
GEMINI	LE	✘	£759	WHILE STOCKS LAST!
GEMINI	FULL	✘	£859	
GEMINI	FULL	✔	£1195	
POWERLOOK II	✘	✔	£1499	
POWERLOOK II	FULL	✔	£1599	
POWERLOOK 2000 with BINUSCAN	FULL	✔	£2995	PRICE CRASH!
MIRAGE A3	FULL	✔	£5495	PRICE CRASH!
UMAX Vista Transparency Adaptor			£329	
TextBridge bought with any Umax scanner			£39	

AGFA

Model	Software	Trans Adap	Price
SnapScan	ColorIt/Omnipage	✘	£249
StudioScan IISi	Photoshop LE	✘	£539
StudioScan IISi	Photoshop FULL	✘	£589
StudioStar	Photoshop LE/Omnipage	✘	£559
Arcus II	Photoshop FULL	✔	£1649
DuoScan	Photoshop FULL	✔	£2849

EPSON

Call for full Details/Prices on the range £CALL

PAPERPORT

Visioneer Paperport VX (inc. WordScan OCR SW)	£229
SCSI Adaptor for Paperport VX	£49
4 Port Juggler for Paperport/Modems	£89

CAMERAS

Casio QV-10 Digital Camera	£339
Apple QuickTake 150 inc. Mac/PC Kit	£419
QuickTake Carry Case	£40
QuickTake 100 to 150 Upgrade Lens	£13
Connectix QuickCam	£79
Connectix VideoPhone	£99
Connectix VideoPhone Software	£45
QuickCam Colour	£179

PRICE CRASH!

STORAGE

INTERNAL HARD DRIVE	
D2, 1.2Gb	£229
D2, 2.1Gb	£359
D2, 4.0Gb (Atlas AV)	£775
EXTERNAL HARD DRIVE	
D2, 1.2Gb	£279
D2, 2.1Gb	£410
IOMEGA 100Mb ZIP Drive - inc. Cartridge	£125
IOMEGA ZIP Drive 100Mb Cartridge	£11
IOMEGA ZIP Drive 6 PACK of 100Mb Cartridges	£54
Formac 200Mb Syquest Drive - inc. Cartridge	£299
Formac 270Mb Syquest Drive - inc. Cartridge	£349
Formac 230Mb Optical Drive - inc. Cartridge	£349
SONY 2.6Gb Optical Drive - inc. Cartridge & Cable	£1649
D2 200Mb Syquest Drive - inc. Cartridge	£319
D2 270Mb Syquest Drive - inc. Cartridge	£379
D2 230Mb Optical Drive - inc. Cartridge	£399
D2 EZ230 Drive - inc. Cartridge & Cable	£CALL
D2 EZ230 Cartridge	£CALL
IOMEGA 1Gb JAZZ Drive - inc. Cartridge & Cable	£339
D2 JAZZ Drive Inc. 3 Cartridges & Cable	£469
IOMEGA JAZZ Drive 1Gb Cartridge	£75
NEW IOMEGA JAZZ Drive 5 PACK of 1Gb Cartridges	£359
44Mb Capacity Syquest Cartridge	£28
88Mb Capacity Syquest Cartridge	£30
200Mb Capacity Syquest Cartridge	£45
270Mb Capacity Syquest Cartridge	£34
230Mb OPTICAL DISKS	£20
D2 EZ135 Cartridge	£14
SONY CD WRITER Double Speed - Write, Quad Speed Read including Toast or Gear Software	£599
YAMAHA CD WRITER Quad Speed - Write, Quad Speed Read including Toast or Gear Software	£725
PINNACLE RCD 5040 CD WRITER inc. Software	£649

PRICE CRASH! PRICE CRASH! PRICE CRASH! PRICE CRASH!

WACOM TABLETS

Artpad II... £109 Artpad II with Dabbler... £150
Ultra Pad... A5 - £255, A4 - £355, A3 - £555

COMMS

Apple GeoPort for AV/Power Macs - 14.4	£94
Apple Personal COMMs Solution - 14.4 £109 28.8	£179
(For 630/5200/5260/5300/5320/6200/6300/6320, see 'Performa Options' below left)	
Motorola 3400 Pro V34 - 28.8	£115
FREE £100 HOLIDAY VOUCHER WITH 3400 PRO (Hurry while stocks last!)	
Lasat Safire - 28.8	£139
US Robotics Sportster 288 V34 - 28.8	£149
Global Village TelePort Gold II - 14.4 BABT	£49
Global Village TelePort Platinum - 28.8 BABT	£129
Global Village PowerPort Gold PCMCIA 14.4 BABT	£189
Global Village PowerPort Platinum PCMCIA 28.8 BABT	£239
Psion Dacom Gold Card - PCMCIA	£179
FAX Friend- Auto switch between FAX/Voice calls	£49
FREE INTERNET access software via Compuserve with ALL Modems!	

PRICE CRASH!

RAM UPGRADES

SIMMs... 4Mb, 8Mb,16Mb, 32Mb	£CALL
DIMMs... 4/8/16/32Mb or 64Mb	£CALL

Memory Prices Fluctuate Daily, Call GH FIRST!!!

SOFTWARE

Corel Draw Suite (Corel Draw + Word Perfect)	£279	Complete After Dark CD	£34
		Apple PC Exchange	£39
Corel Draw Suite UPGRADE	£99	Apple Personal Diagnostics	£68
Quark Xpress 3.3	£649	Apple System 7.5 - CD/3.5"	£59
Adobe Illustrator 6	£279	Norton Utilities 3.2	£74
Adobe Photoshop 3.0	£399	SoftWindows 3.0 - CD/3.5"	£209
Adobe Collection	£549	SoftWindows '95 - CD	£249
KAI's Power Tools 3.0	£95	Conflict Catcher	£52
KPT Vector Effects	£95	VIREX - Anti Virus	£59
KPT Power Photos 1, 2 or 3	£95ea.	SAM	£54
KPT Convolver	£95	SAM (Inc. Updates for 1Year)	£109
KPT Bryce II	£139	RAM Doubler	£38
KAI's GOO	£42	Speed Doubler	£38
Freehand 5.5	£319	RAM & Speed Doubler Pack	£54
Fontographer	£290	NOW Upto Date & Contact	£55
Claris Works 4	£94	Stuffit Deluxe 4.0	£66
Claris Works to MS Office u/g	£179	DOS Mounter	£52
Claris E'Mailer	£42	DiskGuard	£66
Claris Draw	£95	Master Juggler Pro	£49
Claris Impact	£95	Hypercard 2.3.1	£94
Filemaker Pro 3	£159	Let's Keep It Simple - S/Sheet	£98
Claris Home Page	£69	Maths Workshop	£28
Microsoft Office 4.2	£359	Creative Writer & Fine Artist	£39
Microsoft Word 6.0	£245	Encarta '96	£39
Microsoft Excel 5.0	£245	Groliers Ency. Science Fiction	£30
M.Y.O.B. Accounts	£149	Please call and ask for any	£CALL
MacMoney	£62	Mac software not listed!	

MAC ACCESSORIES

Apple Design Speakers II	£49
Sony PC21 Speakers	£29
Apple Desktop II Ergonomic Mouse	£28
Kensington Turbo Mouse V4	£68
Kensington Thinking Mouse	£51
MacAlly Mouse	£17
MacAlly Joystick	£32
MacAlly Game Pad	£22
Jet Stick	£38
Flight Stick Pro	£68
APPLE 1 YEAR ON-SITE MAINTENANCE	£15

NEWTON

GH HAVE BEEN APPOINTED AN OFFICIAL "NEWTON CENTRE"
CALL THE EXPERTS FOR ANYTHING NEWTON!

NEWTON 120 MkII - 2Mb + Software Pack	£329
NEWTON 130 MkII	£CALL FOR SPECIAL PRICES!
NEWTON GSM BUNDLE	£949

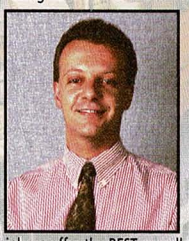
NEWTON ACCESSORIES

External FAX/Modem	£84	FOR 100 Model...	
Print Pack	£39	Carrycase	£14
Keyboard	£65	Leather Carrycase	£25
AC Adaptor	£19	Battery Pack Recharger	£33
Car Adaptor	£23	Battery Booster	£12
1Mb Storage Card	£55	FOR 110/120/130 Models...	
2Mb Storage Card	£105	Leather Carrycase	£29
4Mb Storage Card	£185	Mains Recharger Cradle	£49
Connection Kit - Mac	£45	Nicad Battery Pack	£15
Connection Kit - Windows	£45	Stylus	£8

NEWTON SOFTWARE

PowerForms	£74	Time Reporter	£69
GoFigure	£24	Quick Figure Pro	£43
Berlitz 5 Language (PCMCIA)	£70	AvailWorks	£60
		CIS Retriever	£93
Jig Saw Strategy Game	£16	First Class Retriever	£79
Equate	£61	NS Basic	£79
Press for Mac	£52	Now Synchronise	£22
Notion (The List Manager)	£32	Please call GH for LOTS MORE NEWTON ACCESSORIES AND NEWTON SOFTWARE!	
TapWorks	£55		
PocketCall	£71		
Accountable	£48		
Leverage 2.0	£88		
Action Names/Agenda 3.0	£35		

GH is a family business established in 1955. We've been supplying systems since 1982 and now with over £40 million worth of units sold, and a quarter of a million happy customers... Our Trading Record is Second to None!



We think we offer the BEST overall deal possible and... because we are appointed and authorised by Apple for our high standards in Hardware Maintenance and Care, YOU can rest assured you'll get the BEST service too!

We offer you everything!
TRY US NOW! - Giles Harwood

CONFIGURATION and TESTING SERVICE... *available for Hardware, Peripherals and Software. Please ask for details!*

Authorised Reseller

- Apple Authorised Reseller
- Apple Authorised Service Provider
- Apple Authorised Higher and Further Education Alliance Reseller
- Apple Commercial Credit Provider
- Apple Newton Centre

Standard Warranty *normal cover is comprehensive but we also offer enhanced and extended warranties too. If your Mac is an essential part of your business, you may require a fast collection or on-site response service for minimal down time. Ask for details and choose the option that suits your needs best. Our 'Gold Service' is priced from as little as £10!*

Lifetime Warranty Plan *for equipment used at Home (ie not on commercial premises)... Add an extended warranty to any hardware from GH. Take up to 3 yrs cover and at the end of that period extend again on an annual basis, you get a lifetime's peace of mind. Schemes even cover for accidental damage as well as breakdown. Fully transferable should you wish to sell your equipment so enhancing resale values. Even available on certain hardware purchased elsewhere. Phone GH for details.*

Equipment under Apple warranty *can be collected for service... even if it was purchased elsewhere! We are also happy to quote for out of warranty hardware repairs and service, no matter how old the product may be. Call GH for details.*

VISIT OUR SHOWROOM...

We are often told our showroom is the best in the UK. So why not visit us in scenic Derbyshire and see for yourself the vast range we have on display, all at mail order prices, off the shelf!

WHY NOT MAKE IT A DAY OUT?

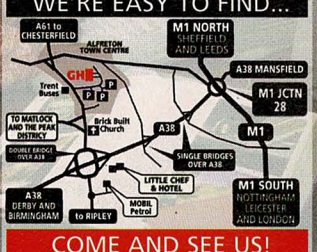
FREE TOURIST i

Ask for our Tourist Information Leaflet which covers the many local natural and special attractions, from quiet country walks to historic sites and exciting modern theme parks.

IT'S ONLY A SHORT DRIVE... EVEN FROM LONDON

We're open Monday to Saturday 9.00am until 5.00pm...

WE'RE EASY TO FIND...



COME AND SEE US!

ALL PRICES EXCLUDE VAT
and are shown for businesses only. Consumers - please ask for an Inc. VAT Prices.

All GH Printers, Monitors, Scanners and Storage Devices are supplied with Standard Desktop Mac Cables FREE!
(PowerBook users - ask for cable details/prices)

NO CREDIT CARD SURCHARGES!

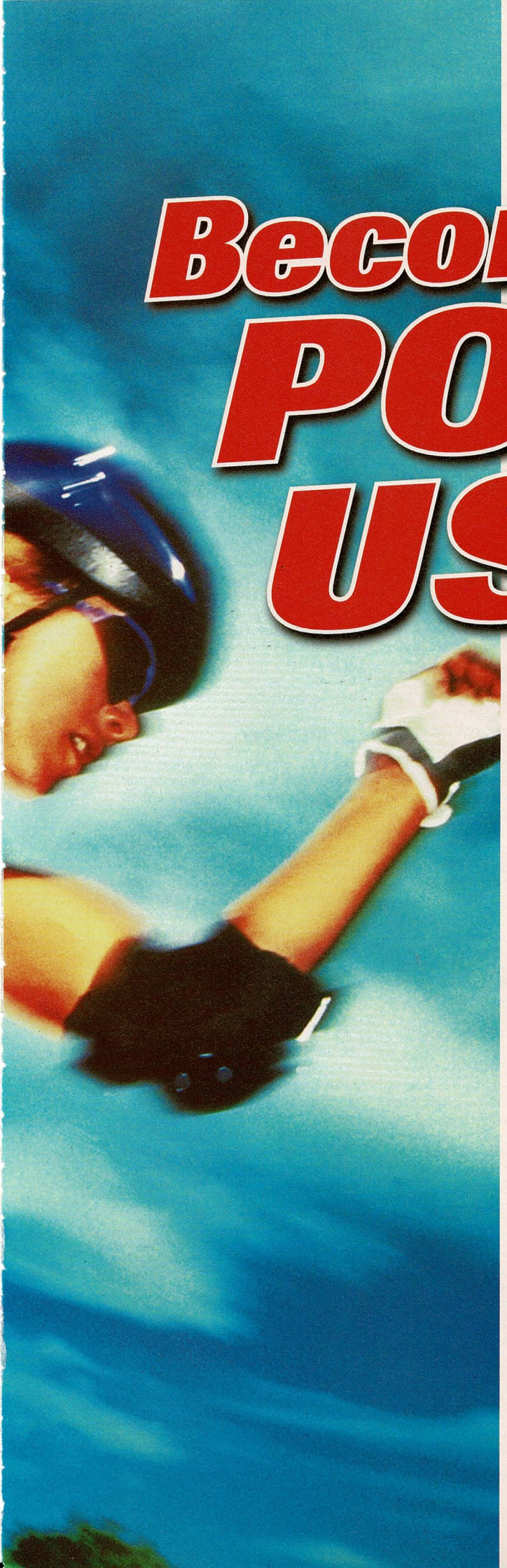
Access VISA Creditcharge DELTA SWITCH

For your protection all Credit Cards are Security Checked

Phone Gordon Harwood Computers

01 773 836781

Dept. MF/V5, New Street, Alfreton, Derbyshire. DE55 7BP FAX: 01 773 831040



Become a POWER USER!

Whichever Mac you've got, chances are you could be getting more out of it – more speed, more usable RAM, more reliability, more co-operation! Derek Smith shows you how to make your Mac work harder for you.

Of course you'd like to get more from your Mac – wouldn't everyone? You *could* install a new processor, buy more RAM, fit a faster hard disk, invest in a RAM Cache, even buy an ergonomically more efficient mouse... But throwing more money at your Mac isn't the only answer. Why not customise and optimise the set-up you've already got?

And what about your Mac's most vital component – you? There are plenty of ways you can speed up without the need to resort to steroids. Not only will you get more work done, but you'll be a fully-fledged Power-User and impress everyone around you with your voluminous Macintosh knowledge. (Well, provided that they haven't also read this article!)

Over the next 12 pages, we've got over 75 hints and tips on how to customise and set up your Mac for maximum efficiency. We've split them into three sections. First we look at the most widely used Macintosh program. What is it? The Finder, also called the Desktop. Although you may not think of it as a program, that's exactly what it is, and like any Macintosh program, there are lots of tips and shortcuts that will enable you to make better use of it.

Then we look at Control Panels and how to set them up to suit the way *you* work – a mystic art at the best of times.

Finally, we've picked ten of the best shareware Finder Enhancers around – and they're all included on our Cover CD so that you can use them to customise your Mac and, of course, give yourself the extra features you've always wanted.

You'll probably already know some of the techniques and tricks you'll find on these pages, and some of them might not suit either you or your set-up. But we're willing to bet you'll find something you can apply to make using your Mac even more enjoyable than it already is. ➤

How to gain more RAM!

More RAM means more room for programs to work in. Even if you use Virtual Memory, having more free RAM will speed up your Mac because it doesn't need to swap data in and out of RAM. Here's how to gain more.

On start-up, your System grabs a slice of memory for itself, called the System Heap. This includes all your Extensions and Control Panels. Just trash any you don't need and you slim down your System Heap, regain RAM, and save disk space into the bargain. But what don't you need? An invaluable little utility called *The InformInit* will tell you what everything does and what you can safely trash – and it's *yours* on this issue's Cover Disk!

Mastering the Desktop

If you're just too young to have experienced System 6, or if your memories don't reach far enough back into the mists of time, I'll pause and remind you of it. On my networked LCII, System 6 used to take about 250K of memory, was simple to use and ran extremely fast.

Those days are gone. System 7.5.3 is currently gobbling up nearly 10Mb of RAM on my PowerMac and, allowing for rose-tinted memories, doesn't actually seem to run any faster. So why are System 6 users on the brink of extinction? Just what is so compelling about System 7 that people will sacrifice all their RAM to use it? Well, as Julie Andrews once said, here are a few of my favourite things – and what to do with them...

Aliases

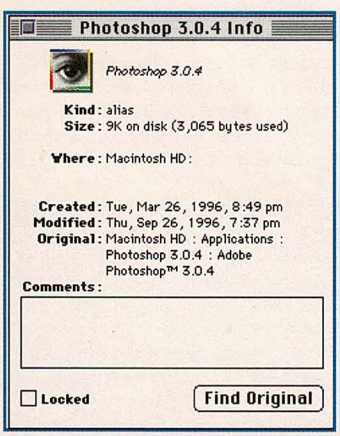
1 Mastering **Aliases** is crucial to setting up your Mac if you're going to use it at maximum efficiency. An alias is simply an icon that points to an original of a file, folder, application or server. Double-click on an alias and the original opens or launches.

Creating an alias couldn't be simpler: highlight the icon of the folder or application you wish to create an alias for, then choose **Make Alias** from the **File** menu in the Finder (**[command] M** in System 7.5). The new alias will appear alongside your original file, but you can then place it anywhere. So you could, for instance, create an alias of an application – say *ClarisWorks* – and place it on your Desktop where it's easy to get at. Because they merely point to the originals, rather than being copies, aliases take up a nominal amount of disk space – a couple of K each – so you can use them freely.

Aliases are readily identifiable because their names are in italics (although not when viewed in the **Apple** menu). If you can't remember where abouts on your hard disk the original of a particular alias lies, highlight the alias and choose **Get Info** from the **File** menu (or hit **[command] I**). Then click the **Find Original** button in the bottom right-hand corner.

2 There are several uses for aliases, all of which are concerned with quicker file access, and we'll look at these under "Apple Menu" and "Apple Menu Options" a bit later, but you should also consider making aliases of servers that you regularly connect to, or even folders on those servers. Double-clicking on such an alias automatically brings up the log-on screen – no need to open the **Chooser** and then click on all those options.

3 Oh, and by the way, when you're in an open dialogue box, double-clicking an alias with the **[option]** key held down doesn't open the file, but instead takes you instantly to the folder that contains the original.


Photoshop 3.0.4 Info
Photoshop 3.0.4
Kind: alias
Size: 9K on disk (3,065 bytes used)
Where: Macintosh HD:
Created: Tue, Mar 26, 1996, 8:49 pm
Modified: Thu, Sep 26, 1996, 7:37 pm
Original: Macintosh HD : Applications : Photoshop 3.0.4 : Adobe Photoshop™ 3.0.4
Comments:
Locked
Find Original

Lost the original? Highlight your alias, hit **[command] I** and you'll find a button that will take you straight to it.

Use your **Labels** to name specific areas of work. This can make it easier to search for documents.

Labels

Among many of the wonderful innovations that came with System 7, such as aliases and personal file sharing, were **Labels.** Oh well... I guess you can't hope to get them all right.

The idea is that you can colour-code any icons with one of seven colours. Each colour can represent whatever you like, for instance Important, Spreadsheet or Project Alpha. You change label names using the **Labels** Control Panel.

4 Can't see a use for them? Here's a couple. You'll notice that when you use the **Find File** application (under **File** in the Finder), you can undertake a search using many factors, and these include the label. By labelling important files in specific colours, you'll be able to find them much more quickly in six months' time when you've long forgotten what they were called.

5 Also, if you are tired of applications installing things in your System Folder without telling you, then simply label everything in your System in one colour. You'll then be able to quickly spot any unlabelled intruders in the future.

Starting up

What's the first thing you do when you start up your Mac? No, I don't mean make a cup of tea while your Extensions take ten minutes to load – after that! Perhaps you open your e-mail program, or your diary, or just double-click your hard disk to open it up.

6 Whatever it is, consider the **Startup Items** folder in your System folder. Any item placed in there, including aliases, will automatically open at start-up. So pop an alias of your diary, e-mail program or hard disk in there and it will open for you automatically.

7 But what if you're in a hurry to do something else and don't want them to open? If you hold down **[shift]** after your Extensions have started to load but before the Desktop appears, your Mac will ignore the **Startup Items** folder. It also won't open the windows that were open at Shut Down, as it usually would.

8 The **Startup Items** folder has a cousin, new to System 7.5, called **Shutdown Items.** Although this has fewer obvious uses than the **Startup Items** folder, you could, for instance, put a back-up utility in there. When you Shut Down, this utility would enable your Mac to perform a complete back-up of your work and then turn itself off, something that could save you valuable time at the end of the day.

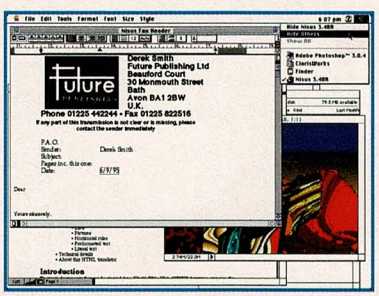
Multitasking

The Mac isn't quite a true multitasking computer in the strictest sense of the word. However, you can have several programs open at once and swap between them at will, which for the vast majority of operations is all that you'll ever require.

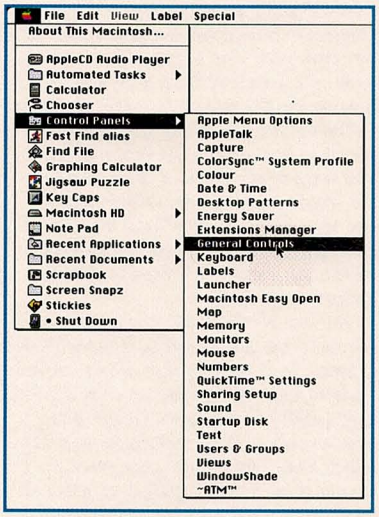
Unfortunately, having all these programs open at once can get a bit confusing. It also slows your Mac down because it constantly has to check all the visible windows to see if they need updating. You can help matters with wise use of the **Applications** menu, the icon in the very top right-hand corner of your menu bar.

9 For a start, this menu tells you which programs you have open. It's easy to close all the windows of an application but forget to quit it, and without quitting, that application is still taking up precious memory.

10 Choosing an application from this menu brings it to the fore, partially obscuring other applications in the background. This can get a bit confusing, so consider using the **Hide**



It's easy to forget what you have open. The **Applications** menu can help you to keep track of what's going on.



Reach all your nested folders, files and aliases quickly by getting to them through the hierarchical Apple menu.

Others option from this menu. As you might imagine, this hides all other windows, leaving you with a cleaner, clearer screen. It also makes your Mac run faster because it no longer needs to update all the information contained in the background windows.

11 You can automatically hide the application you are leaving, simply by holding **[option]** as you choose the next program from the application menu. This also works if you hold down **[option]** and just click on any visible portion of another application, or indeed the Desktop.

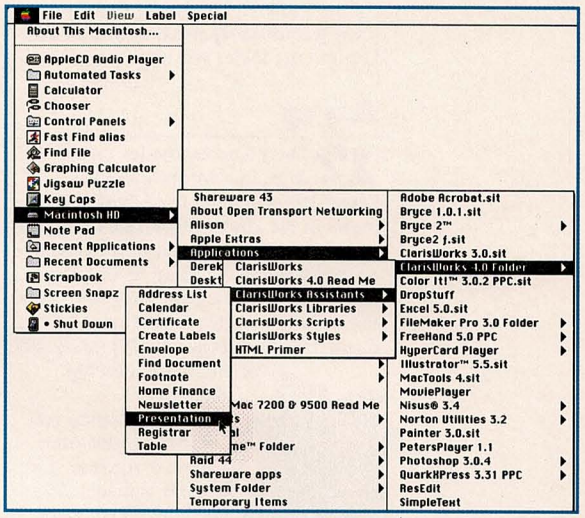
The Apple menu

The **Apple** menu offers great potential for speeding up the way you work. Essentially it's your very own custom menu and you can use it as you will. You can add items to your heart's content (there's no limit to the number), and remove rubbish such as the **Puzzle.** There's nothing that *has* to live in the **Apple** menu, although it's the obvious place to keep frequently-used items such as the **Chooser.**

12 To alter your **Apple** menu, first open the **System Folder,** locate the **Apple Menu Items** folder, and open it up. You'll find icons for all the things you normally see in the **Apple** menu. To get rid of the **Puzzle,** for example, simply drag it to the **Wastebasket.** If you look at your **Apple** menu now, it's gone!

Adding items is just as easy – simply pop them in this folder. Better still, create an alias of them and put that in instead, so the original can stay where it belongs.

13 The items you see in the **Apple** menu are listed alphabetically. This gives you the opportunity to arrange their order, so that, for example, you can put your most frequently used items at the top. To do this, simply add a space or number at the beginning of an item's name. As far as your Mac is concerned, spaces and numbers come before "A" in the alphabet, so items labelled this way appear at the top of the list. Not enough? An item with two spaces in front of it will appear higher up the list than an item with one space, and so forth.

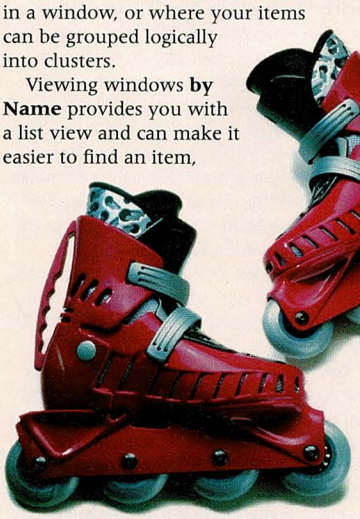


It might look like a mess, but navigating through five levels of hierarchical Apple menus is much quicker than going to the trouble of opening five individual windows.

Viewing windows

14 There are two basic ways of viewing windows, as controlled by the **View** menu. Viewing **by Icon** is a friendly graphical interface and can be useful, particularly if you have few items in a window, or where your items can be grouped logically into clusters.

Viewing windows **by Name** provides you with a list view and can make it easier to find an item, especially when you have a lot of items. You have choice of how to sort windows, and while viewing alphabetically **by Name** is the obvious choice, viewing **by Date** can be handy for keeping the items you've used most recently at the top of your list.

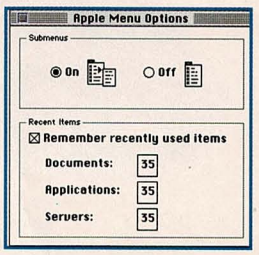


15 To change how you sort list views, you can click on the title in the window bar. For instance, clicking on the words **Last Modified** has the same effect as choosing **by Date** from the **View** menu.

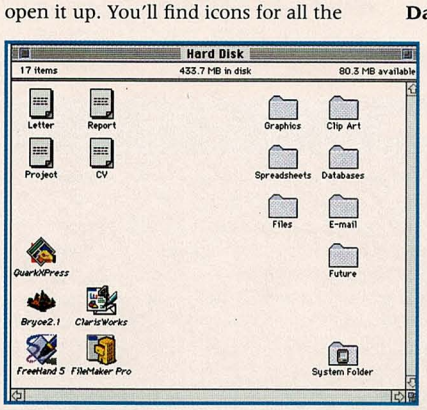
16 Another consequence of viewing your windows as a list is that you gain little triangles to the left of the folders. If you click on one of these triangles it displays the folder's contents in the same window without opening a new window. Opinion varies over the usefulness of this feature – it's one you'll either love or hate – and certainly if you have a small monitor or lots of files within your folders, you're likely to find it of little advantage over double-clicking the folder.

If you hold **[option]** when you click on one of these triangles, it not only opens that folder, but all the nested folders within it as well. Not surprisingly, to close all folders you **[option]** click the triangle a second time.

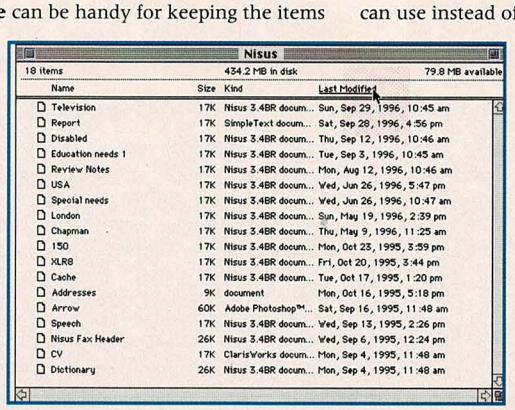
There's also a keyboard shortcut you can use instead of clicking the triangle. If ➤



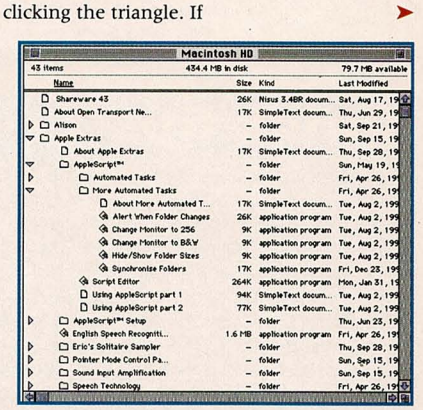
Enable the recently used items menus for really speedy access to documents, applications and servers.



Choosing View by Icon does look a little cumbersome, but it enables you to group your work and applications into logical positions.


Nisus
18 items
434.2 MB in disk
79.8 MB available
Name
Size
Kind
Last Modified
Television 17K Nisus 3.4BR docum... Sun, Sep 29, 1996, 10:45 am
Report 17K SimpleText docum... Sat, Sep 28, 1996, 4:56 pm
Disabled 17K Nisus 3.4BR docum... Thu, Sep 12, 1996, 10:46 am
Education needs 1 17K Nisus 3.4BR docum... Tue, Sep 3, 1996, 10:45 am
Review Notes 17K Nisus 3.4BR docum... Mon, Aug 12, 1996, 10:46 am
USA 17K Nisus 3.4BR docum... Wed, Jun 26, 1996, 5:47 pm
Special needs 17K Nisus 3.4BR docum... Wed, Jun 26, 1996, 10:47 am
London 17K Nisus 3.4BR docum... Sun, May 19, 1996, 2:39 pm
Chapman 17K Nisus 3.4BR docum... Thu, May 9, 1996, 11:25 am
150 17K Nisus 3.4BR docum... Mon, Oct 23, 1995, 3:59 pm
XLR8 17K Nisus 3.4BR docum... Fri, Oct 20, 1995, 3:44 pm
Cache 17K Nisus 3.4BR docum... Tue, Oct 17, 1995, 1:20 pm
Addresses 9K document Mon, Oct 16, 1995, 5:18 pm
Arrow 60K Adobe Photoshop™... Sat, Sep 16, 1995, 11:48 am
Speech 17K Nisus 3.4BR docum... Wed, Sep 13, 1995, 2:26 pm
Nisus Fax Header 26K Nisus 3.4BR docum... Wed, Sep 6, 1995, 12:24 pm
CV 17K ClarisWorks docum... Mon, Sep 4, 1995, 11:48 am
Dictionary 26K Nisus 3.4BR docum... Mon, Sep 4, 1995, 11:48 am

Want to know when you started or altered a piece of work? Click on Last Modified and your window is quickly rearranged, enabling you to View items by Date.


Macintosh HD
43 items
434.4 MB in disk
79.7 MB available
Name
Size
Kind
Last Modified
Shareware 43 26K Nisus 3.4BR docum... Sat, Aug 17, 19
About Open Transport Ne... 17K SimpleText docum... Thu, Jun 29, 19
Alison – folder Sat, Sep 21, 19
Apple Extras – folder Sun, Sep 15, 19
About Apple Extras 17K SimpleText docum... Thu, Sep 28, 19
AppleScript™ – folder Sun, May 19, 19
Automated Tasks – folder Fri, Apr 26, 19
More Automated Tasks – folder Fri, Apr 26, 19
About More Automated T... 17K SimpleText docum... Tue, Aug 2, 19
Alert When Folder Changes 26K application program Tue, Aug 2, 19
Change Monitor to 256 9K application program Tue, Aug 2, 19
Change Monitor to B&W 9K application program Tue, Aug 2, 19
Hide/Show Folder Sizes 9K application program Tue, Aug 2, 19
Synchronise Folders 17K application program Fri, Dec 23, 19
Script Editor 264K application program Mon, Jan 31, 19
Using AppleScript part 1 94K SimpleText docum... Tue, Aug 2, 19
Using AppleScript part 2 77K SimpleText docum... Tue, Aug 2, 19
AppleScript™ Setup – folder Thu, Jun 23, 19
English Speech Recogniti... 1.6 MB application program Fri, Apr 26, 19
Eric's Solitaire Sampler – folder Thu, Sep 28, 19
Pointer Mode Control Pa... – folder Sun, Sep 15, 19
Sound Input Amplification – folder Sun, Sep 15, 19
Speech Technology – folder Fri, Apr 26, 19

Don't forget the arrow buttons which also act as a hierarchical menu system, but beware of huge lists of documents on a small monitor.

the desired folder is already highlighted, press **[command]** and the right arrow key and the folder will open for you.

Tidy up

17 There's no excuse for untidy icons in a window. Use the **Clean Up** command from the **Special** menu in the Finder. Normally, this will snap your icons to the nearest point on an invisible grid. To clean up only a portion of the icons in a window, first select the ones you want tidied, then hold down **[shift]** and the **Special** menu will instead say **Clean Up Selection.**

18 However, you can get your Mac to organise your icons alphabetically. Simply hold down **[option]** when you go to the **Special** menu and it will instead say **Clean Up by Name.** This organises your icons alphabetically while snapping them to the grid.

19 If you want to organise your icons by, say, date, then first choose **by Date** from the **View** menu. Then view **by Icons** again, and this time when you hold down **[option],** you'll see **Clean Up by Date** in the **Special** menu. This works for any of the other choices available in the **View** menu – first select it, then **by Icons** again.

20 The Desktop is slightly different because it can never be viewed in any other way than **by Icon.** Here, choosing the normal **Clean up Desktop** command will move items to the nearest grid position, whereas holding **[option]** will organise them along the right edge of the screen. Be warned, though, once you've chosen either of these options, there is no simple way to undo the changes you've made.

Drag and drop

If you're confused by System 7.5's **Drag and Drop,** then you're not the only one. You've been dragging files onto application icons for years, so what's new – what's all the fuss about?

21 Strictly speaking the Drag and Drop technology that comes as part of System 7.5 is something completely different. For instance, if you want to move a paragraph in a *SimpleText* document, previously you would have copied and pasted it using the **Edit** menu. Now you can highlight your block of text, then using the mouse, drag it to a different place in the same document. This method is quicker and more intuitive. Drag and Drop also works between documents, so you could drag the highlighted block from one *SimpleText* document to another.

This will also work with certain graphics – for instance, you can drag a picture from one *Photoshop 3.0.4* document to another. Indeed, it will even work between applications. You can drag a graphic from *ClarisWorks 4.0B4* to *FileMaker Pro 3.*

22 If you drag text or a graphic onto the Desktop, it will appear as a clipping file. You can then drag the contents of this file onto another document, or store it away. By double-clicking on a clipping file you can see its contents, but you can't edit them.

These clipping files can be treated like any normal file, so you could send one to a friend who could drag it onto one of their documents to include the contents.

23 You can also use these files to leave yourself messages. For instance, say you wanted to remember where you got a bunch of files from. You could write "These are Database files from Dave" in a text-editor that supports Drag and Drop, for example a **Stickies** note, highlight the text and drag it to the appropriate folder, then rename the clipping file you've created to something like "Note for me". In the future, when you double-click the clipping file, you'll see the note.

The main drawback to all this is that, like AppleScript, applications have to be made Drag and Drop aware by the manufacturers. Unfortunately, few are – the programs mentioned above being notable exceptions (remember though that you'll almost certainly need the very latest versions of most of them).

Selecting icons

24 Of course, you know that to select an icon you click on it once. But how do you go about selecting a whole group of icons? The first technique is to hold down the **[shift]** key as you click each icon in turn. If you want to de-select an icon from a group, keep holding **[shift]** and click it a second time.

The second technique is to draw a selection box around the group of icons you want to select. Place the pointer on the window or Desktop rather than the first icon and drag. You'll see a dotted rectangle appear. Any icon contained within this rectangle, or touched by it becomes selected.

You can combine the two techniques. For instance, you can drag-select a block of icons, hold **[shift],** then select another block of icons in there same way. If you hold **[shift]** and drag a selection box over already highlighted icons, they de-select. Also, don't forget that you can always press **[command] A** to select all items in the currently highlighted window or on the Desktop.

Controlling windows

25 There's plenty of tricks to make your life easier with windows. For instance, to open a folder and automatically close its parent folder, hold down **[option]** when you double-click the folder's icon to open it.

26 To move a window without bringing it to the front, hold down the **[command]** key as you drag the title bar.

27 If you want to avoid navigating through layers of folders, hold **[command]** as you click the name of an active window. You'll get a pop-up menu showing you all the enclosing folders of that window and you can then scroll through this list to jump to the window of your choice.

28 Clicking the **Zoom** box in the top right corner of a window makes it grow larger and clicking again returns it to its original size, but to make the window fill your entire screen, hold **[option]** while you click.

29 If you want to close all the windows on your Desktop then hold down **[option]** and click the close box of the currently active window or, even quicker, press **[command] [option] W** and watch them all disappear!

30 You can copy the name of an icon when it is highlighted without actually having to make the words editable. This can be useful. For instance,

Quick tips 1 – essential timesavers

1 Always remember that you can print documents from the Desktop. Highlight them, then chose Print from the File menu. The application will load, print your documents, then automatically Quit again.

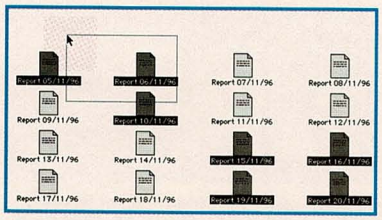
2 How fast? Set your mouse to maximum speed. Don't worry if this seems too fast to begin with, you'll get used to it soon enough and then there'll be no stopping you whizzing around the Desktop.

3 In System 7.5, the WindowShade Control Panel enables you to "roll-up" a window by double-clicking on its title bar. This is ideal for keeping lots of windows close to hand without filling your screen up. Windows that are "rolled-up" don't have to be constantly updated, so using this option spares processor power and makes your Mac run faster.

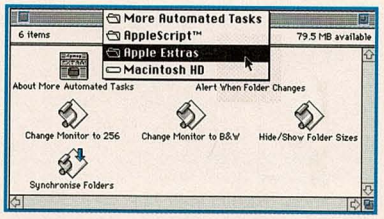
4 Do you really need all those Extensions? Avoiding unnecessary Extensions is probably the easiest way to speed up your Mac and make your System use less memory. For more details see our essential guide *The InformInit v1.1* on the Cover CD and floppy.

5 To get rid of the annoying message that appears when you empty your Wastebasket, select the bin and choose Get Info from the File menu, then uncheck the Warn before emptying box.

6 If you're not on a network, make AppleTalk Inactive using the Chooser. AppleTalk uses memory telling the network "I'm here!" and slows your Mac down. The speed difference depends on the type of network you're set up to use, but deactivating it can increase your Mac's performance by up to 10%.



Drag your cursor over a group of icons to select them, then holding the **[shift]** key, you can further add to your selection.



Hold down **[command]** while you click on a window name and you can see (and navigate) the complete folder structure.

suppose you want to send a query to a company's e-mail technical support desk. It could be helpful for them to know what Extensions you have. Simply open the **Extensions** folder, press **[command] A** to select all icons, then chose **Copy** from the **Edit** menu. You can now choose **Paste** from the **Edit** menu in any word processor or e-mail package and all those names will appear in a list with a line return between each one. You will find that there's a limit of 256 characters to this function, so it might take you a couple of trips, but it's still faster than typing out all the names would be!

31 If you wanted, for whatever reason, to send someone a list of the contents of any of your windows by either fax or post, don't forget you can print a copy of the contents of a window by selecting **Print Window** from the **File** menu. Even if all the items aren't visible in the window on your monitor, they'll all print out on the list.

Keyboard shortcuts

Although you may be used to using your mouse to execute every command, there are a number of "keyboard shortcuts" you can use. These may seem tricky to remember at first, but you'll be surprised at how quickly they become second nature. Most keyboard shortcuts are listed alongside the relevant menu option, but there are one or two not listed that are very handy:

32 You can select any icon in a highlighted window or on the Desktop by typing the first letter of its name. If you have several files that begin with the same letter, type the first few letters of the name and your Mac will move to the closest one as you type.

33 To launch a highlighted application or file, or open a highlighted folder, press **[command] O** or **[command]** and the down arrow.

If you want to move between windows, tidying up as you go, hold **[option]** while you open a window and its parent window will close. To reverse this move, hold down **[command] [option]** and either **W** or the up arrow. Your open window will close, and its parent window will open. To get back to the Desktop at any time, hit **[command] [shift]** and the up arrow.

34 You can eject the disk from your Mac's internal floppy drive by pressing **[command] [shift] 1** and the disk from any type of external drive by pressing **[command] [shift] 2,** but both these options leave behind a "ghosted" icon on your Desktop. To eject a floppy without leaving this ghosted image behind, press **[command] E**. To do the business for any external drive, and also get rid of any servers or shared folders from your Desktop, highlight the relevant icon and press **[command] Y** (Put Away).

35 Keyboard shortcuts are also handy in dialogue boxes. You can choose any box with a double line around it, usually the **OK** button, by pressing **[return]**. Pressing **[command]** and the period (full stop) will select any **Cancel** button, and if you hit **[command]** and the first letter of any other option, it will usually be selected for you.

36 Finally, System 7.5.1 and later also provide you with a keyboard shortcut for **Shut Down** – simply hit the power key (at the top right-hand corner of your extended keyboard) and a **Shut Down** dialogue box offering you this option will appear.

In control

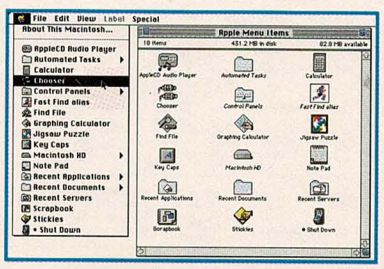
The **System Folder** inside your Mac is a deeply mysterious place, full of strange-sounding widgets designed to daunt and worry you, particularly if you're a Mac novice. To become a real Power User you need to concentrate on a handful of Control Panels that dictate the way your Mac both looks and works. Knowing what they do is one thing, but how should you set them up to take best advantage of what they can do for the way you work? Here we explain all the options open to you – check some of these out and you can not only save yourself some RAM, but also develop an even more impressive turn of speed!

Apple Menu Options

System 7.5 saw a major change in the way you can use the **Apple** menu with the addition of the **Apple Menu Options** Control Panel. Admittedly it was a straight rip-off of the shareware programme *BeHierachic* and offered nothing new, but at least you didn't have to send $10 to Apple to use it guilt free.

37 This Control Panel gives you a hierarchical **Apple** menu. This means that if you place a folder, or a folder's alias, in the Apple menu, you can see a pop-out menu of that folder's contents. For instance, the System software places an alias of your **Control Panels** folder in your **Apple Menu Items** folder. This can then give you a pop-out list of all your Control Panels.

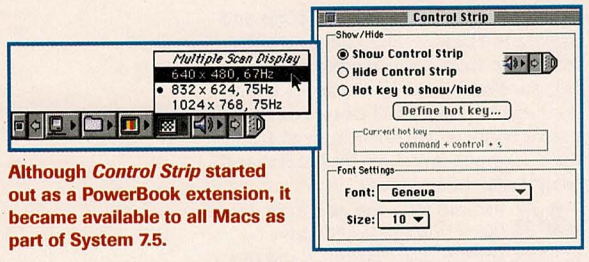
You can also put your own folder aliases in **Apple Menu Items** – say, a folder of all your word processor files. If there's another folder inside the first one, you get yet another pop-out menu, and this will carry on up to five levels deep. This means you could put an alias of your hard disk in there and be able to access virtually all your files from the **Apple** menu, whatever program you're currently in – no need to keep returning to the Desktop.



The items that you place in your **Apple Menu Items** folder appear alphabetically in the menu itself.

38 The **Recent Items** option is just as handy – make sure you use it. Your Mac will automatically create aliases of your most recently used files, applications, and servers – again, this means there's no need to trudge through windows on your Desktop.

When I used earlier versions of System 7, I always put aliases of my most heavily used applications into the **Apple** menu. No more. Whenever I want to open an application I go to the **Recent Applications** folder in the **Apple** menu.

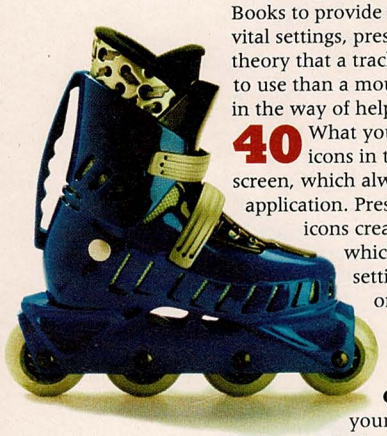


Although *Control Strip* started out as a PowerBook extension, it became available to all Macs as part of System 7.5.

39 By default, the number of recent items is set to ten. Increase this. However, while you *can* set it to almost anything, it's best to avoid a list that's longer than the height of your screen. You can fit 25 items on a 14-inch screen and 35 on a 17-inch, always assuming that you use the standard Chicago font for your menu bar text.

Control Strip

The **Control Strip** has a strange history. It was originally developed for PowerBooks to provide a quick way to access vital settings, presumably because of the theory that a trackball is more awkward to use than a mouse, so you need more in the way of help.

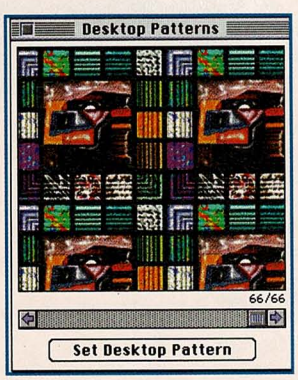


40 What you see is a thin strip of icons in the bottom left of your screen, which always float on top of any application. Pressing on one of these icons creates a pop-up menu in which you can access a setting, such as sound level or screen resolution.

Each one of these controls is a separate module that lives in the **Control Strip** folder in your **System Folder.** This makes it very easy for you to remove unwanted modules or add new modules. There are also tons of shareware modules available for every conceivable utility. If you have Internet access, you'll find them at **ftp://src.doc.ic.ac.uk/pub/packages/mac/umich/system.extensions/controlstrip/**

There was never a technical reason why **Control Strip** wouldn't work on a desktop Mac, and indeed, a shareware author created a Control Panel called *Desktop Strip* for normal Macs which could use the same modules. You can get hold of a copy of this from the same site as the modules.

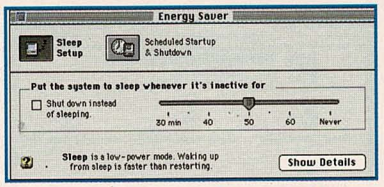
Finally in System 7.5, Apple made it a standard part of the System software, available for all Macs.



Sick of the teddy bears, cats and bubbles in the Desktop Patterns option? Paste in any graphic you like to create your own.

Desktop Patterns

41 If you're going to customise your Mac, then you'll certainly want to consider a new **Desktop Pattern.** Your Mac comes with 64 pre-defined patterns, but you can add any graphic you like, up to 128 pixels square. Simply open the Control Panel and paste in a new graphic.



40 winks... Making your Mac go to Sleep rather than shutting it down can save you valuable time at every Start-up.

42 If picking a pretty Desktop Pattern doesn't seem like an activity that need bother you, then there is one important trick you should learn: if you take screen-shots to use in instruction manuals or the like, you can save yourself the time you would normally spend cropping out all of that distracting patterned background.

By setting your **Desktop Pattern** to pure white, you'll get screen shots that don't need accurate cropping. Unfortunately, of the 64 patterns that come ready with the **Desktop Patterns** Control Panel, you're well supplied with teddy bears and cats, but no pure white.

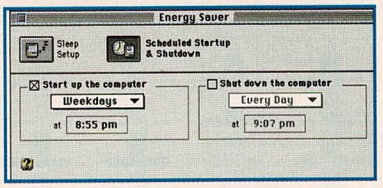
To create it, you can use any program with graphic capabilities (*GraphicConvertor* is on the Cover CD in the **Resources** folder). Draw a small white box with no border, then choose **Copy** from the **Edit** menu. Open the **Desktop Patterns** Control Panel and choose **Paste** from the **Edit** menu. You now have a pure-white pattern that will become your Desktop colour as soon as you double click it.

Energy Saver

These are environmentally sensitive times. All new Macs have been produced to do their bit to save the planet, and I don't just mean by fighting aliens (and where *did* Jeff Goldblum get a PowerBook complete with CD-drive?). Nope, your Mac's environmental efforts may seem less glamorous, but if left untouched for a specified period, it can turn itself off, or switch to **Sleep** mode.

43 In **Sleep** mode, your monitor turns itself off, and your Mac saves energy by spinning-down the usually active hard disk. The advantage of **Sleep** over **Shut Down** is that your Mac can be started in a few seconds, as opposed to the few minutes it takes when started from cold.

44 You also have the facility for scheduled **Startups** and **Shut Downs.** This is mainly used with servers that don't need to be active overnight or at weekends. However, if you start using your Mac at a regular time each morning, consider setting a scheduled **Startup** for five minutes before that time. That way your Mac will be up and running and waiting for you when you sit down at your desk. Alternatively, when you go home at night, you could just select **Sleep** from the **Special** menu rather than **Shut Down.** Of course, both these tactics completely miss the point of energy-saving, but that's the nanny society for you.



Spooky – give your Mac a life of its own, and make it *turn itself on* before you get in to work. No more waiting for Extensions.

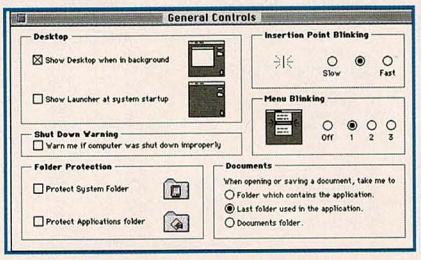
General Controls

45 The **General Controls** Control Panel offers you plenty of customising scope. You'll normally want to tick **Show the Desktop when in background.** This enables you to return to the Desktop from another application simply by clicking on any visible part of it. One of the few occasions when you might want to untick this option is when you are taking screen-shots of another application and don't want to see icons on your Desktop.

46 The **Launcher** is a purely personal choice. It opens an ever-present window on the Desktop which contains icons of your applications and documents. Clicking once on one of these icons opens it. To add an icon you just drag the original on to the open **Launcher** window.

To remove an icon you have to go into the **System Folder,** locate the **Launcher Items** folder and remove the alias from there yourself, rather like the **Apple Menu Items** folder. In fact, incredibly like it. The **Launcher** *is* just like the **Apple** menu. Only not as convenient. In fact, don't bother using it. No-one I know does.

47 The **Shut Down Warning** option is the salt to rub into the crashy-Mac wound. The last thing you want to know when you've just lost half an hour's work due to a System crash is that you didn't **Shut Down** properly. Turn it off, and leave it off because it also adds time to your **Restart.**



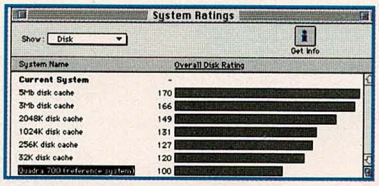
Forget the Launcher, Shut Down Warning and Folder Protection, but make sure Menu Blinking and Documents are set up properly.

The Launcher – just like a rather inconvenient Apple menu really. No, honestly... What *is* the point?

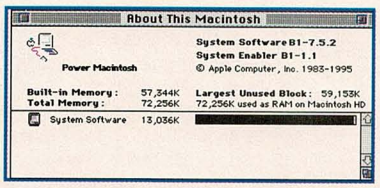
48 The two **Folder Protection** items are interesting. When they're enabled, you can't delete anything from the System Folder, or any folder named "Applications". I'm not sure what the thinking is behind this. It can't be to protect your Mac from vandals because it you do attempt to delete something, the message box that appears tells you how to turn it off. I guess it's only useful if you've got children old enough to wield a mouse but too young to know what a Control Panel is!

49 While I don't know anyone who is too concerned over the speed at which their insertion point blinks, **Menu Blinking** *is* worth customising. Turning it off altogether can be dangerous because the menu bar won't blink to confirm the selection when you use a keyboard shortcut. The other extreme – getting it to blink three times – can be somewhat time-wasting and tedious. A setting of one or two should be ideal.

50 The **Documents** option is a blessing. Saving files to the **Folder which contains the application** is as untidy as it is undesirable, but defaulting to the **Last folder used in the application** is ideal. Each application remembers its own last used folder. Defaulting to a folder named exactly **Documents** is pretty pointless. Even if you do normally save all your work into one such folder, it'll still be the last used folder, so you might as well use that option anyway!



As *Norton System Info* proves, the larger your disk cache, the faster your Mac is capable of running – up to a limit.

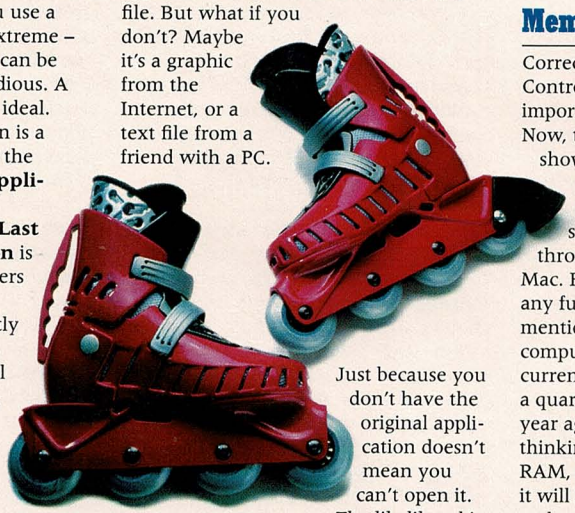


Create yourself some more RAM out of thin air by enabling Virtual Memory – it will eat through your disk space though.

Macintosh Easy Open

51 There are three basic ways to open a file. First you can choose **Open** from the **File** menu of any application. This is safe, but slow. Second you can drag a document's icon onto the specific application icon (or alias) you need. This is a good way of launching files because you can be specific about which application you want to use. For instance, you probably have several programs capable of opening text files, so you can pick the one you desire.

Third, you could double-click the document's icon. This is the simplest method – assuming you still have the application that was used to create the file. But what if you don't? Maybe it's a graphic from the Internet, or a text file from a friend with a PC.

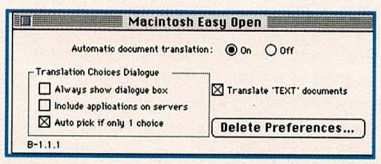


Just because you don't have the original application doesn't mean you can't open it. The likelihood is that one of the programs you do own can open the file.

You could drag the target file onto a particular application. However, as we've said before, that's not as quick as double-clicking, and maybe the application can't open that type of file.

If you have the **Macintosh Easy Open** Control Panel installed, when you double-click an unknown file, it will search all your applications to find one capable of opening it. You can then choose which application you wish to use from the list of candidates presented.

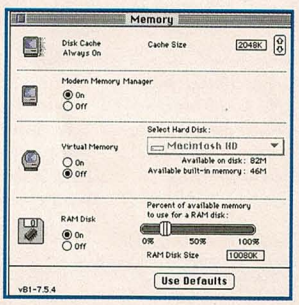
Probably the best set-up is shown in our picture. This will remember what applications you use to open different kinds of files, so does it automatically without giving you options. If you ever change your mind – say, you'd prefer to open graphics with *Color It* instead of *Photoshop* – then click the **Delete Preferences** button. It will forget every preference you have already taught it, enabling you to select new applications for each file type.



Define the applications you want your Mac to use to open specific file types by configuring Macintosh Easy Open.

Memory

Correctly setting up your **Memory** Control Panel is one of the most single important factors for an efficient Mac. Now, this whole feature is dedicated to showing you how to make best use of what you already have on your desk, rather than just suggesting that you throw more money at your Mac. However, before we go any further, it's worth mentioning that the price of computer memory (RAM) is currently at an all-time low – a quarter of what it cost a year ago! So if you've been thinking about buying more RAM, now's the time, because it will increase in price again, and soon.



Get your Memory Control Panel settings right, and you could revolutionise the speed of your Mac.

That out of the way, let's look at the **Memory** Control Panel. Your Mac keeps active programs in memory (RAM), but usually reads data from your hard disk. RAM is a much faster type of storage than your hard disk, so almost all Macs have a **Disk Cache.** This is a portion of your memory used to store the most recently-accessed data from the hard disk. If that data is needed again, it is read from RAM rather than the hard disk, thus speeding up access to commonly needed data.

52 You can set your cache to any size between 32K and 7,680K, but the more RAM you allocate to a cache, the less will be available for applications. On non-PowerMacs, don't set the cache above 512K, because, thanks ➤

Quick tips 2 – work smarter

1 To copy an item from one folder to another rather than just moving it, hold down **[option]** when you drag it across, and you'll get a duplicate, without the word "copy" written after it.

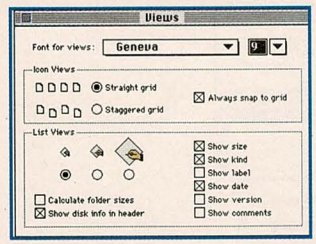
2 How many times have you launched an application by mistake? Rather than waiting for it to load then quitting it, you can abort the launch if you're quick enough. Just press **[command] [period]** – but you must be fast!

3 If you get an alert message asking you to insert a floppy disk that you no longer have, press **[command] [period]** several times and this should get rid of the alert.

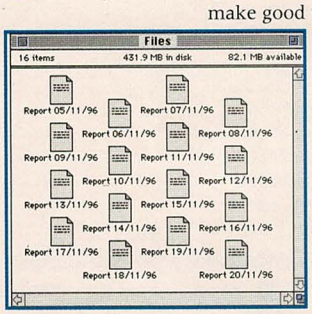
4 For a **Wastebasket** that lies right along the bottom of your Desktop, first open the **Wastebasket** and make the window the width of the screen. Then position the window so you can just see the title bar at the bottom of the Desktop. Anything dragged onto the title bar will enter the **Wastebasket.**

5 Using custom icons on your files and folders is a matter of balancing speed with increased usability. The icons make it easier, and therefore quicker, for you to select folders, but they do slow your Mac down. To get rid of them, particularly from CDs, use *CDIconKiller,* available on every MACFORMAT Cover CD in the **Resources** folder.

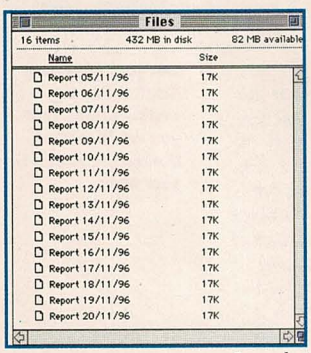
6 When using **Find File** to search for something you've lost, you don't have to type the whole name. Just type in a complete sequence of letters you're sure appear in the file name, for example "orma" for Macformat, hit the **Find** button and **Find File** will search for everything that contains that text string.



Stick to Geneva for your file names – it's built into the System software, so it re-draws more quickly than other typefaces.



Using a Staggered grid in Views can make windows full of long filenames less confusing.



Limiting the amount of information in your Views Control Panel means that your windows re-draw quickly and use less space.

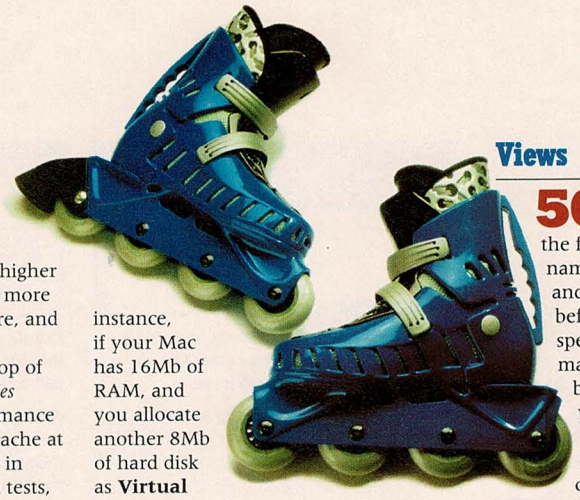
to a limitation in the way 68K Macs work, you'll get no extra benefit. PowerMacs don't suffer from this same problem, so the higher you set the cache, the more information it can store, and the faster your access.

Our picture at the top of page 45 is taken from *Norton Utilities System Info* and it shows the performance of disk access on a 7200 with the cache at different settings. It must be borne in mind that these are not real-world tests, but they do demonstrate that if you can spare some RAM, the **Disk Cache** can make good use of it.

53 The **Modern Memory Manger** is much more straightforward. As the name suggests, PowerMacs handle memory in a different way from non-PowerMacs. Normally this doesn't cause a problem, but a few applications, especially older versions, may cause your PowerMac to crash if you use them with **Modern Memory Manager.** If you're getting regular unexplained crashes, especially Type 11 errors, try turning the **Modern Memory Manager** off to see if this helps. You'll experienced a decrease in performance of around 5%, but that's still more time-efficient than crashing. If you haven't experienced such problems, ensure that it's turned on.

54 **Virtual Memory** is available on all Macs with a 68030 processor or better, which enables your Mac to use hard disk space as RAM. By turning it on, you can give yourself as much virtual RAM as your hard disk space allows. This enables you to open more applications at the same time, effectively for free.

Sounds too good to be true? Well, there are some drawbacks. First, as we've already said, hard disks are much slower than RAM, so your programs will run noticeably more slowly. Second, you'll lose the same amount of hard disk space as the *total* amount of RAM you set. For instance, if your Mac has 16Mb of RAM, and you allocate another 8Mb of hard disk as **Virtual Memory,** you'll lose not just the 8Mb but 24Mb of your hard disk space.



Something else to be considered is that PowerMacs load programs in a quirky way. With **Virtual Memory** turned off, your PowerMac will load entire applications into RAM, but with **Virtual Memory** turned on, it will load just portions of the application, as needed. For instance, *ClarisWorks* needs a minimum of 1.4Mb of RAM to run with **Virtual Memory** on, which leaps to 3Mb when it's turned off.

The decision is therefore tricky. Even if you have plenty of RAM in your PowerMac, it might be worth turning **Virtual Memory** on and setting it to its minimum amount. This will be approximately half the RAM needed by most applications. If you have plenty of RAM and only use a few programs, turning **Virtual Memory** *off* will significantly increase the speed of your Mac.

55 A **RAM Disk** is the opposite of **Virtual Memory.** Here you take RAM and turn it into a mini hard disk. Because RAM is so fast, saving or writing data here can be much quicker. *Norton System Info* will tell you that a **RAM Disk** is up to four times as fast as a hard disk.

This sounds great, but there are two serious drawbacks. First, if you use your RAM for a **RAM Disk** it's not available for applications, and second, RAM is volatile. This means that if your electricity goes off, you lose everything in the **RAM Disk.** Having said that, the contents will survive a normal Restart. There aren't many occasions when a RAM Disk is worth while, but if you regularly access something like a complex database then creating a **RAM Disk** big enough to accommodate both the application and the data will make it fly along.

Views

56 The first settings in the **Views** Control Panel are the font and size used for file names. The default is Geneva 9pt and you should think very hard before changing this. Geneva was specifically designed to give maximum clarity on screen, and because it's an integral part of your System software, rather than an extra file like other fonts, it will redraw more quickly than any other typeface.

57 Even if you prefer viewing windows **by Name,** you'll view **by Icons** sometimes, even if it's only on the Desktop. This is where **Always snap to grid** comes into its own – if you've never used it before, then try it out. This automatically positions icons along an invisible grid, ensuring that they don't overlap and are easy to see. If your icon names are fairly long, then you may want to choose a staggered grid to see them better.

Occasionally, though, you might want to position an icon off the grid. By holding down the **[command]** key as you drag an icon, snap to grid is temporarily turned off. Or, if it's normally turned off, holding **[command]** will temporarily turn it on.

58 The list view options need some thought too. **Show disk info in header** is useful, and enables you to see how many items are in a folder, while barely slowing your Mac down. The same cannot be said of **Calculate folder sizes.** Unless you really want this information, turn it off – it'll slow you down.

You can also choose which bits of information you see for each item, such as the last modified date and size. Turn **Labels** off if you don't use them. Doing this means you can fit the information you need into a smaller window, which will then update faster.

Over to you!

One of the great things about Macs is that they're just so flexible and customisable. If we've missed out *your* favourite tricks and tips, share them with us! Write to "Power User", MACFORMAT, 30 Monmouth Street, Bath BA1 2BW, and we'll print the best in a future issue! **MF**

Quick tips 3 – essential shortcuts

1 Although your Mac can run several programs at a time, the foremost program gets both preferential treatment and time. So if you leave your Mac churning away, making a chess move or rendering a picture, ensure that you leave the most important application at the front.

2 If your **Wastebasket** stubbornly refuses to delete an item, try holding down **[option]** when you empty it.

3 To eject a floppy disk without leaving its ghost on screen, drag it to the **Wastebasket,** highlight it and chose **Put Away** from the **File** menu, or press **[command] Y.**

4 The **Sharing Setup** Control Panel isn't critical if you're not part of a network of Macs. However, many applications, including games, use the **Owner Name** field to find out who you are at registration or for high-scores, so it might be worth filling it in.

5 Stationery files always open as Untitled documents and are very useful. If your application doesn't have the option to save as a stationery document, select the individual file, choose **Get Info** from the **File** menu, then select the bottom right box.

6 When opening and quitting applications, your Mac doesn't always properly free-up the memory they were using. This can slow you down and also means that some larger documents may not open. The only way round this is to **Restart** your Mac, but if you're going to be using a RAM-intensive application for a while, this can be worth the extra effort.

7 Although it might seem quicker, don't ever use **Force Quit** instead of a **Restart. Force Quit** leaves your Mac in a very unstable state and, to prevent future crashes, you should always **Restart** after you've used it.

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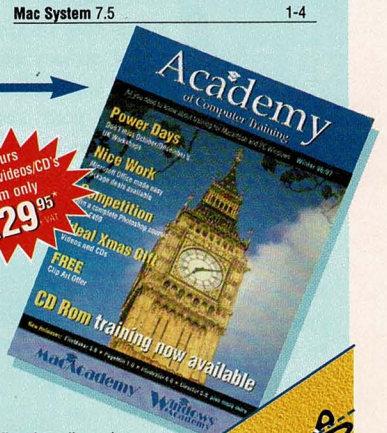

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Ten of the best

Whatever Apple does with the Finder, there are shareware programmers out there who think they can do it better. Rod Lawton presents our top ten Finder enhancers...

ON THE CD

All programs are in the Finder Enhancers folder

You've seen how to streamline your Mac, and now we bring you utilities for creating custom menus, sticky menus and even tear-off menus. You can enhance your Apple menu and even design icons to replace menu names; you can increase the size of your **Open** and **Save** dialogue boxes and speed up navigation through your hard disk. All this and more is right here.

All of these programs are shareware, which means you can try them for nothing, but if you want to carry on using them you must pay the shareware fee – and the programmers rely on your honesty. It's only because people pay their fees that programmers can carry on writing shareware and we can bring you more features like this. Apple might claim otherwise, but innovations that appear as shareware influence versions of the Finder – just look at System 7.5.

Documentation is provided with all of these programs. Sometimes it's in the form of a mini-manual, sometimes it's just a sentence or two (in which case we explain what you need to do). The documentation also tells you the shareware fee and where to send it.

Most of these programs use Control Panels and System Extensions, so obviously, the more you use together, the greater the chance of Extension conflicts. There were too many possible permutations here for us to test all of the utilities in combination, so you should simply try it and see. You'll easily work out which utilities don't work together. Having said that, you probably won't want to use too many at once anyway. It depends on the way you work and your own views of the Finder's shortcomings.

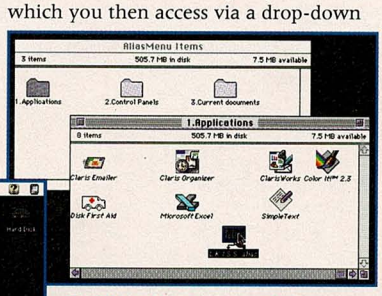
AliasMenu 1.1

Not everyone agrees that hierarchical menus are great. When you're trying to slide your mouse from a main menu to sub-menu and you miss, you end up cursing them instead – especially if you've negotiated your way to a menu five levels down, only to have the structure close because you missed by a fraction.

In which case, you might find *AliasMenu* a refreshing change. It's a Control Panel which enables you to add your own menus to the Finder menu bar. You can have as many as nine custom menus, and if your menu bar isn't wide enough to accommodate them all, you can assign icons to them instead.

AliasMenu doesn't support hierarchical menus – its author says he doesn't like them and this is his alternative approach. And with a shareware fee of $20 (around £12.90), it might be cheerful, but it's not as cheap as it could be. Still, if you hate hierarchical menus, *AliasMenu* is worth a serious look.

Hang on, how come your Finder menu bar has an additional icon and menus? Thanks to *AliasMenu*, you can build your own custom Finder menus.



To add an item to one of your custom menus, simply create an alias and drag it into the appropriate place inside the AliasMenu Items folder, which is inside your System Folder.

Apollo 1.22

Apollo was creating hierarchical menus long before Apple thought to include them for the **Apple** menu in System 7.5. And even if you do have System 7.5, *Apollo* is still useful because it boasts a whole host of other customising options.

Think of *Apollo* as being an **Apple** menu with knobs on. Lots of knobs. Like the **Apple** menu, you can use it to launch documents and applications, but it also takes over the functions of the **Applications** menu (at the top right of your screen) and adds a few tweaks of its own. For example, you can set *Apollo* to hide other applications when you swap, or choose which window you want made active as you swap applications.

Apollo can also create groups of items, which you then access via a drop-down sub-menu. A "passive" group is one that contains a list of items you can select individually, while selecting an "active" group launches all the items in that group. Active groups are extremely useful if you regularly work with half a dozen files as part of a single project, and you routinely want them all open at once.

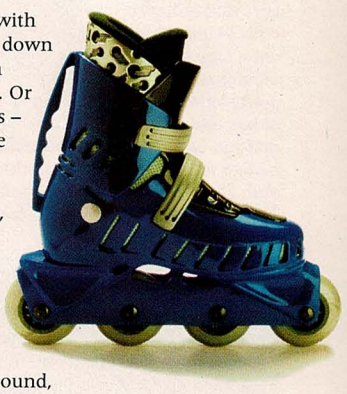
***Apollo* handles customised hierarchical menus with ease – and you don't need to create dozens of aliases and drag them off to obscure little folders to do it.**

Here's a neat enhancement of Apple's own Applications menu – *Apollo* enables you to choose which window you want to make active.

You can also configure *Apollo* with "sticky" keys: click once to bring down the menu, then click again when you've found the item you want. Or you can have "auto-drop" menus – simply move the pointer over the *Apollo* icon and the menus drop down automatically. The *Apollo* icon can be put at either, or both, ends of the menu bar.

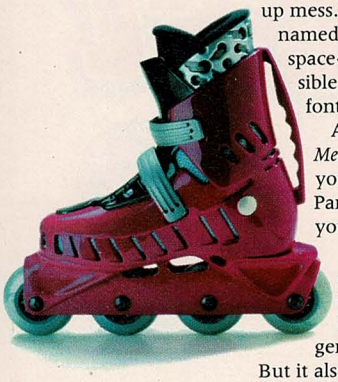
Finally, you can assign a modifier key to go with a mouse click, to call up the *Apollo* menu any time, anywhere.

Apollo has more features than you can quickly get your head around, but some of them have been made less relevant by System 7.5. It's also tricky to see how the configuration screens work. But even for a shareware fee of $30 (£19.35) it's an amazing utility that makes the Finder look puny and slow.



Menuette 2.0.1

Do you ever run out of space on your menu bar? Some applications create



more menus than a small monitor can cope with, and the result is a squished-up mess. And why are all the menus named? Why not use colourful and space-saving icons? If that's not possible, why can't you choose a menu font other than plain old Chicago?

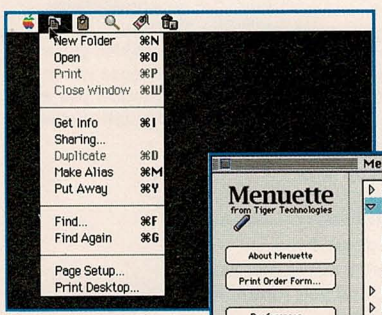
As you've guessed by now, *Menuette* puts all this right. Once you've installed it (it's a Control Panel), you simply restart to see all your menus as little icons.

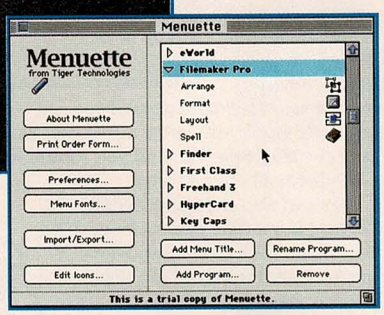
What? All of your menus in all of your applications? How does *Menuette* know all of them? It doesn't – it stores icons for generic menus like **File** and **Edit**. But it also has sets of icons for specific applications with their own specific menus. If your applications aren't listed, you can add them and hunt out icons that are suitable for any non-generic menus. You can even design your own using the very good built-in icon editor.

Now icons are all very well. They look pretty and all that, but they're not exactly intuitive, are they? Not like words, anyway. And until you get to recognise each icon on sight, you might occasionally forget what they mean... which could be a bit of a problem. Except that *Menuette* enables you to toggle between icons and words with three clicks on the menu bar (or any other key and mouse combination of your choosing).

Menuette also enables you to pick a different menu font. You have to stick to 12-point text, but you can choose from a range of styles. Condensed Geneva makes a nice change from blocky old Chicago.

Menuette can't increase your productivity dramatically, but it does make your Mac look very pretty. For $15 (£9.70), its functions are a masterpiece of design.

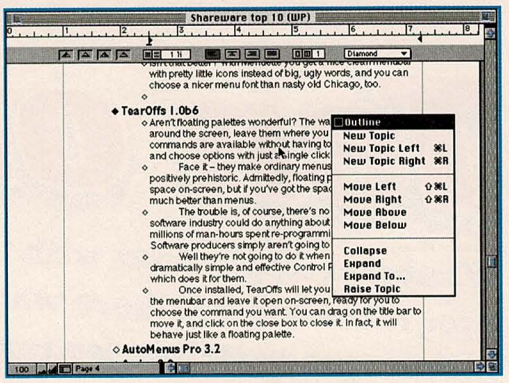




Isn't that better? With *Menuette* you get a nice clean menu bar with pretty icons instead of big, ugly words; and you can choose a nicer menu font than nasty old Chicago, too.

***Menuette* doesn't include icons for your favourite application? You can add your application to the list and design your own icons instead.**

TearOffs 1.0b6



Since when did *ClarisWorks 4* have a floating Outline palette? Since we installed *TearOffs*, that's when.

Aren't floating palettes lovely? The way you can drag them around the screen, leave them where you want, see what commands are available without having to pull down a menu and choose options with a single click. If you'd rather have palettes than menus, *TearOffs* is the answer.

Once installed, *TearOffs* will enable you to drag any menu off the menu bar and leave it open on-screen, ready for you to choose the command you want. You can drag on the **Title** bar to move it, and click on the **Close** box to close it. In fact, it will behave just like a floating palette.

You don't have to drag off the whole menu, though. By pressing the appropriate modifier key you can drag just the menu title, so its options then appear on a sub-menu alongside. You aren't limited to dragging off a single menu at a time, either – you can select modifier keys so that a single mouse click will display all the menu titles vertically or horizontally at the point you clicked on.

While being simple and effective, *TearOffs* is not entirely well-behaved. It disabled the hierarchical menus on the Apple menu, which was a bit of a nuisance, and managed to crash our Mac on one occasion too. The documentation isn't much help: "minimalist" would be a kind way of describing it. You might also find it useful to know that TOT stands for Tear-Off Title and TOM stands for Tear-Off Menus (a stack or row of torn-off titles). You might not find the shareware fee of $25 (£16.10) quite so handy!

What on earth...? With *TearOffs* you can instantly pop up a vertical or horizontal strip of menu titles wherever you click your mouse.

AutoMenus Pro 3.2

Much as any right-thinking Mac owner will despise the PC and everything it stands for, these infernal machines do have one feature that is sadly missing from your Mac – sticky menus. On the PC, when you click on a menu title, the menu drops down and stays open until you click on something else.

You don't know how useful this is until you use it for a while and then go back to the Mac. Suddenly you realise how ham-fisted an operation dragging is. With a less-than-perfect mouse mat and a mouse ball that isn't steam-cleaned every week, the extra pressure of your finger can turn your mouse from a smoothly gliding precision instrument into a passable impression of a square-wheeled car. Or maybe your mouse mat is cleaner than ours...

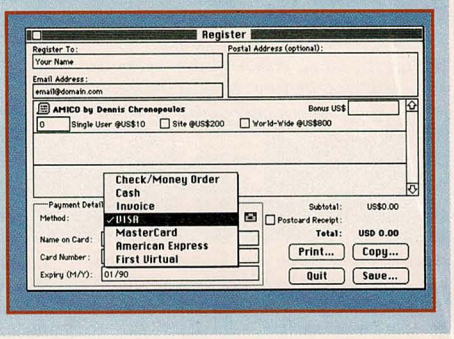
Either way, *AutoMenus* reproduces the PC effect and more. You can make your menus either stay open until you click again, or drop down when the mouse pointer simply passes over them.

AutoMenus isn't the only software to do this, but rival applications have a weakness – dropped menus often stay open until you click somewhere. If you change your mind, you have to click somewhere else to close each menu. With *AutoMenus*, it's enough simply to move the pointer away from the menu.

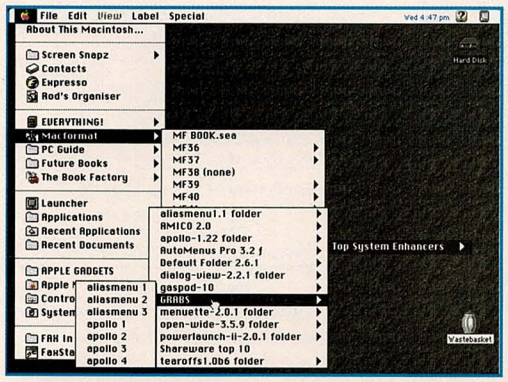
Cough up!

Although shareware isn't commercially distributed, you still have to pay for it. This can be awkward because a lot of material comes from the United States, so will need paying for in dollars. There are several ways you can do this. First, you can buy a money order in dollars from your local post office and send this to the address in the Read Me file. Second, you can take a trip to your local currency exchange centre – usually a bank or travel agent – exchange the relevant amount of cash for dollars and send it registered post to the person that wrote the software. The third option is a more recent one – you can use the Kagi shareware system.

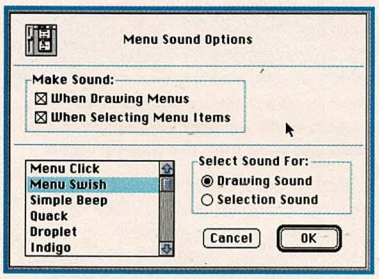
If the person that has programmed your shareware subscribes to this system, you'll see an icon for it along with the Read Me file. Double-click this icon and you'll see a simple form to fill out with all your details. You don't need to pay by cash – you can also pay with Visa, Mastercard or American Express, simplifying the whole process considerably.



The Kagi system simplifies and speeds up the whole process of paying for your shareware.



Hierarchical menus are great, but a real pain to drag through. *AutoMenus* makes this process practically painless.



Would you like your menu-selection activities to be accompanied by pleasant, helpful noises? With *AutoMenus* they can be.

As a finishing touch, you can assign sounds to your menu selection, so your menus can drop down with an important sounding "whoosh" and items can be selected with a decisive-sounding "pok". You can also assign different cursors if you're tired of the old mouse pointer.

For the $15 (£9.70) it will cost you, *AutoMenu's* options aren't entirely frivolous. Sticky menus and audio feedback can be a big help if you have disabilities that make negotiating menus difficult, and these systems can even offer some relief if you're suffering from RSI.

Amico 2.0

With System 7.5 and hierarchical menus, it's possible to make the **Apple** menu the centre of all your activities – you can use it to launch applications, find files, reach your Control Panels and so on.

The only fly in the ointment is the way that the contents are arranged alphabetically. As it stands, you get folders mixed in with files, which are mixed in with applications... It's soon a mess – alphabetical, but a mess.

It's a pity Apple didn't provide you with some way of changing this order. About the only way to do it is to add spaces or numbers to the item names to get the alphabetical sorting to coincide with the order you want. Or you could always just get *Amico* instead.

Amico is a System Extension that modifies the behaviour of the **Apple** menu according to where you place icons in the **Apple Menu Items** folder. In Icon view, you need to position the icons carefully so that they run left to right (or top to bottom if you prefer) in the order you want them to appear in the menu. You can also add dividers to the **Apple** menu. Dividers are created by using empty folders called **'-'** inserted in the appropriate place between the icons in the **Apple Menu Items** folder. It seems a bit makeshift as you're setting it up, but once done it works perfectly, makes an inordinate difference and only costs $10 (£6.45).

Default Folder 2.6.1

It's pretty easy to find the files and folders you want in the Finder by double-clicking folders to open them, by using the drop-down folder arrows in Finder windows or by using System 7.5's hierarchical **Apple** menu. But when you're in an application and want to **Open** or **Save** a file, things are much slower – you have to double-click your way through a sometimes complex hierarchy of folders inside the dialogue box, sometimes having to work your way back up several levels before zeroing in on the folder or file you want. It's even more annoying if you routinely store certain types of file in specific folders: you find yourself making the same trips through the hierarchy again and again.

Default Folder enables you to choose a default folder for all of your applications so that when you want to **Open** or **Save** a file, a specified folder appears in the dialogue box.

On its own, this is little use because you'll probably choose a location according to the project a file is associated with, not its application. *Default Folder* gets round this by enabling you to link applications to more than one folder.

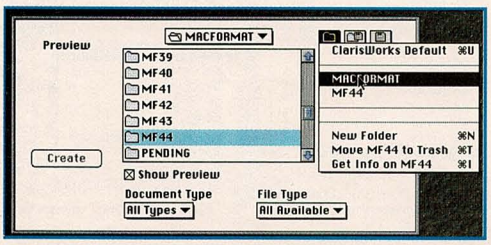
What's cleverer still is the way you can create "linked sets". We created a set called **MacFormat** and added all the applications we'd regularly use to produce the magazine, and in each case we linked the applications to the main **MacFormat** folder. The result? The **Open** and **Save** dialogue boxes default to a cluster of relevant folders, instead of leaving you plodding through the expanse of your hard disk.

You can create any number of linked sets, defining them according to your main Mac activities – for example **"Writing", "Layout", "Work"** and so on.

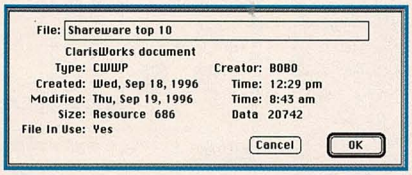
Default Folder then displays three pop-up menus in your **Open** and **Save** dialogue boxes. These menus enable you to choose the default folders you've specified, quickly switch between linked sets and even swap disks without going back to the Desktop first.

Additional features include a list of recently-visited folders, and you can get information on the selected item and even move it to the **Trash** without leaving the dialogue box. You can also lock folders into the *Default Folder* menu and remove them too, all without having to leave the dialogue box.

Setting up *Default Folder* will take you a few minutes, but by shelling out the shareware fee of $25 (£16.10) you'll save that amount of time in the first day, plus a whole lot of irritation.



***Default Folder* gives you three new pop-up menus in your Open and Save dialogue boxes. The first menu enables you to go quickly to your favourite folders.**



Want to know when a file was last modified, or which application created it? It's easy with *Default Folder*, from right within the Open and Save dialogue boxes.

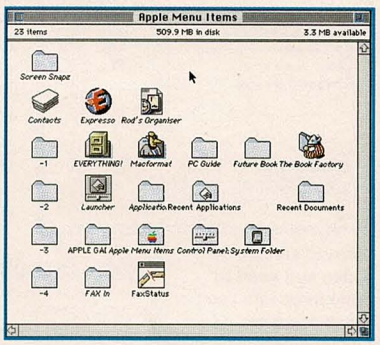
Dialog View 2.2.1

In this day and age, chances are you won't have a display smaller than 13 inches, and you're just as likely to have a 15-inch or even 17-inch monitor. Yet you're still stuck with **Open** and **Save** dialogue boxes which will only show a small number of files and folders in a scrolling list (and that can get squashed horizontally if you use long filenames).

Dialog View is the answer. By adjusting the settings in its Control Panel you can choose the size and proportions of the file list in your **Open** and **Save** dialogue boxes and you can also set the maximum size for your dialogue box, according to your screen size.

You can also choose the size of icons displayed in these dialogue boxes, together with whether you want them to appear in colour or mono (colour icons take longer to draw). This is good news

Notice anything unusual about this Apple menu? Like the way its items are arranged in a logical (rather than alphabetical) order? And the way similar items are grouped together and separated by dividers? It's all thanks to *Amico*.



To configure *Amico*, you simply need to move the icons in your Apple Menu Items folder into the right order, and add some oddly-named empty folders to create dividers.

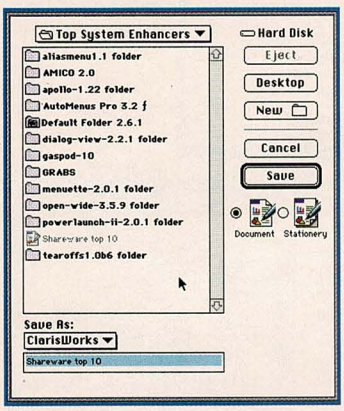
Installation

Most of these programs are either Control Panels or Extensions. To install any of them, drag its icon until it's over your closed System Folder. Your Mac will automatically place it in the right folder; you should then restart your Mac to use the program.

if you're still working pre-System 7.5 because it improves on Apple's generic icon display. If you do own System 7.5, you already get proper icon support – but *Dialog View* goes one better by giving you the option of displaying large icons.

On top of all this, you can also change the font used in **Open** and **Save** dialogue boxes to save space, to make the words bigger or simply because you're sick of Chicago. Large icons and big words can also be a big help if you suffer from impaired sight – all of this for just $10 (£6.45)

Dialog View will work with *Default Folder* but you need to make sure it loads first. You can do this using either an Extensions management application, or by renaming one or the other to change their alphabetical order (System Extensions load in alphabetical order).



Short of screen space and need to cram more into your Open and Save dialogue boxes? *Dialog View* will oblige, enabling you to increase the size of your dialogue boxes and decrease the size of the text.

PowerLaunch II 2.0.1

Not everyone likes launching applications and files from the **Apple** menu, which is why Apple provided the **Launcher** with System 7.5. It's a special Finder window that contains icons for favourite applications and files – you simply click on the icon to launch them. You can add new items by creating aliases and dragging them to the appropriate folder in your System Folder.

The **Launcher** is all well and good, but it's slow and cumbersome next to shareware alternatives – in particular, *PowerLaunch*.

For once, here's a shareware utility that doesn't require a System Extension or Control Panel. *PowerLaunch* is an application you can launch at any time or leave running continuously. Like the **Launcher,** it displays a window containing a row of icons to click on. Unlike the **Launcher,** it can be compressed into a reasonably small area. It can also accommodate up to 80 icons (in ten rows of eight). You can also create different palette sets and switch between them.

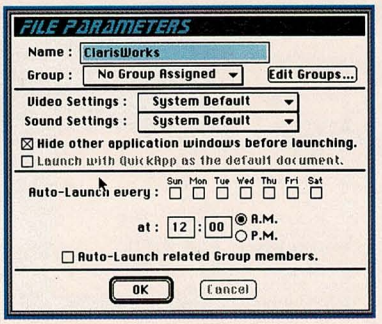
PowerLaunch also enables you to associate files with applications, so that holding the mouse button down on an application icon calls up a menu of your most-used files. If you regularly work with sets of files you want to open simultaneously, *PowerLaunch* can do that too.

Do you want to set different monitor colour depths and sound levels for each application? Easy. Do you want other applications automatically hidden when you switch from one to another? Easy. Do you want to switch quickly between running applications? Easy-peasy.

About the only thing that's not easy about *PowerLaunch* is the documentation; not because it's badly written but because *PowerLaunch* does so many useful things.

Don't worry about it being an application and disappearing behind other windows – you can assign keystroke combinations or screen hot-spots to bring it instantly to the front.

The only thing we don't like about *PowerLaunch* is the registration system. After 30 days the demo version cuts out and you have to send the authors the hefty $30 (£19.35) registration fee to get an "activation" number to restart it. Still, 30 days should be enough for you to make your mind up.



When you add an application to the *PowerLaunch* palette, you can also set up its monitor resolution and sound settings, as well as times for auto-launching.

You can attach documents to *PowerLaunch* icons – simply choose the document you want from the pop-up menu.

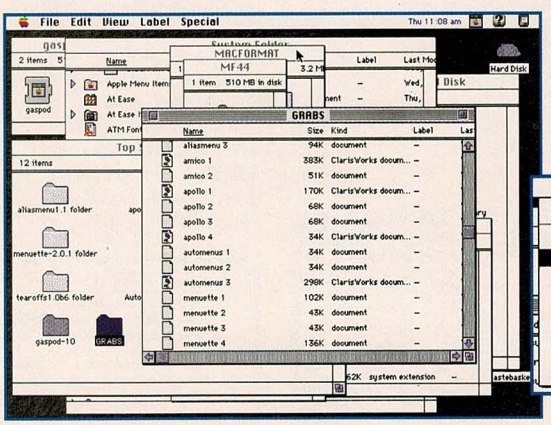
Gaspod 1.0

The Finder is a beautifully simple yet effective invention. The concept of folders and sub-folders is easy to comprehend if you've ever used a filing cabinet, and opening, closing, resizing and moving them couldn't be simpler...

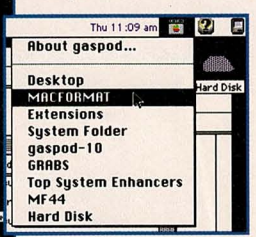
Except that if you don't get in the habit of closing them as soon as you've finished with them, your once-tidy Desktop soon looks like a ransacked office. Maybe the window you want is already open? Maybe it's not? How are you going to find out when you have a great pile of them open at once? It's like trying to find a single letter in a great heap of correspondence.

Gaspod's straightforward answer is to add another menu to the Finder's menu bar, one which simply contains a list of all your open windows. So simple, you wonder why Apple didn't do it.

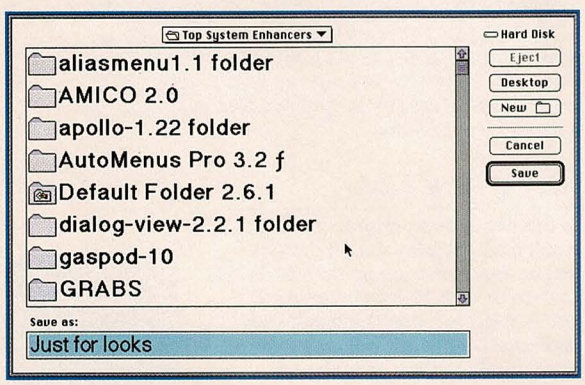
In fact, *Gaspod* provides the same service for any application, except that it can get a bit unsettled where an application uses lots of floating palettes or has its own menu for open windows. The author warns *Gaspod* may get confused in these circumstances, and suggests its best home is in the Finder. It's an excellent little Finder utility that may also be useful for your favourite applications. As well as costing a mere $5 (£3.25), it also comes with the prettiest logo, so that should clinch it for you... **MF**



Does your Desktop look like this? How are you going to find that folder window you wanted? Do you really want to move about 600 others only to find that the one you wanted isn't open in the first place?



Not really. Not when you can install *Gaspod* and choose the window you want from its drop-down menu.



Do you have bad eyesight? Use *Dialog View* to display large icons in your Open and Save dialogue boxes, together with large text.

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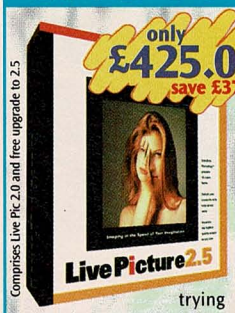

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NOWU	**Now Utilities 6.0** (suite of essential utilities)	£59.00
POPF	**PopUpFolder** (view folder contents with submenus)	£30.00
QCKY	**QuicKeys 3.1** (macro maker, time saver utility)	special
RAMD	**RamDoubler** (actually doubles your available RAM!)	£45.00
SPED	**SpeedDoubler** (greatly improves performance)	£45.00
RASP	**RamDoubler & SpeedDoubler Bundle**	£65.00
THDR	**SpellCatcher** (spellchecker, works in all applications)	£45.00
SFDL	**Stuffit DeLuxe** (famous file compression program)	£65.00
SUIT	**Suitcase 3.0** (manage your font menus)	£49.00
HDTT	**Turbo Toolkit** (speeds up startup and Finder)	£45.00
	PREVENTION & CURE DEPT.	
OPDT	**DeskTape** (treats DAT as if it were a 2Gb drive)	£199.00
MPR1	**MacPrefect** (secures most aspects of the Finder)	£30.00
PRSB	**Personal Backup** (best value backup on the market)	£29.00
RTSP	**Retrospect 3.0** (powerful archival backup)	from £125.00
SAM	**SAM 4.0** (Symantec's anti virus utility)	£45.00
VIRX	**Virex 5.66** (best virus tracer & eradicator of all)	£59.00
	SCREEN SAVERS	
AFDK	**After Dark 3.0** best selling screen saver)	£18.00
LTSS	**Looney Tunes** (famous cartoon screensaver)	£17.00
TTWCD	**Totally Twisted** (outrageous and irreverant, CD only)	£17.00

FEHA	**EtherLan Hub 9** (9 port Ethernet 10baseT Hub)	£65.00
FAIR	**Farallon AirDock** (Infra Red LocalTalk connector)	£69.00
QKML	**QuickMail 3.6 10 User** (powerful, flexible E-Mail)	£349.00
ASPA	**AsantePrint** (Ethernet to AppleTalk printer router)	£249.00
ETWx	**EtherWave** (daisychain Ethernet from Farallon)	£165.00
	Ethernet Cards & Tranceivers (Asante, Shiva, Focus)	from £25.00

MULTIMEDIA

MRPHB	**Morph 2.5** (morph from one QT movie to another)	£75.00
MDRT	**MacroMedia Director 5.0** (key multimedia tool)	769.00
PRMR	**Premiere 4.2** (Adobe's brilliant QuickTime editor)	£399.00
VIDD	**Video Director 2.0** (edit your home videotapes)	£85.00

PC COMPATIBILITY

DSMT	**DOS Mounter 95** (read/write PC floppies on your Mac)	£55.00
MLPT	**MacLink Pro** (best Mac/PC link with100's translators)	£105.00
SFWD	**SoftWindows 3.0** (Windows 3 for PowerMac)	£199.00
SFWE	**SoftWindows 95** (Windows 95 for PowerMac)	£235.00

INTERNET

4DFI	**4D Internet Server** (based on the fastest database around)	£109.00
AINK	**Apple Internet Connection Kit** (available on CD ROM only)	£49.00
HMPG	**Claris Home Page** (excellent Web Page creator)	£79.00
BK5010	**Internet Starter Kit** (the best book)	£27.50
CLEM	**Emailer** (great mail program, supports many services)	£45.00
EDRAA	**Eudora 2.1** (most popular mail package)	£59.00
INET	**Internet Access Kit** (Internet dial up, email, Web, FTP)	£25.00
NTSCB	**NetScape Navigator** (best browser, includes manuals)	£59.00
NUTW	**Now Web Publisher** (put diary/schedules on the net)	£215.00
PGML	**PageMill** (the WYSIWYG way to create web pages)	£65.00
STML	**SiteMill** (eases maintenance of Web Sites)	£139.00
WBBY	**Web Buddy** (makes your surfing easier)	£45.00

POWERBOOK

CCPx	**Carry Case** (Apple or third party)	from £19.00
CPPA	**Car Power Adaptor** (plug in to the car lighter socket)	£65.00
PCNA	**Ethernet Card** (Farallon 10BaseT PCMCIA card)	£175.00
FEVC	**MV16** (16 bit colour/10BaseT Ethernet for 5300/190s)	£139.00
GPCA	**PowerPort Platinum** (PCMCIA 28.8 fax modem)	£239.00
TPCM	**TDK Modem** (PCMCIA 28.8 fax modem)	£225.00

ACCESSORIES

	Cables, Toners and Ink Cartridges (for laser & inkjet printers)	call
KBCF	**Extended Keyboard** (15 function keys, numeric pad)	£39.00
QCKM	**QuickCam** (mono video camera for QuickTime)	£79.00
QCKL	**Colour QuickCam** (colour video camera for QuickTime)	£159.00
AGMJ	**JetStick** (joystick for the control you've always wanted)	£45.00
SESY	**Security Systems** (is your Mac vulnerable to theft?)	from £29.00
TMADD	**Thinking Mouse** (4 button with software)	£59.00
TMADC	**Turbo Mouse** (top selling trackball)	£75.00
WCU6	**Wacom ArtPad II A6** (handy stylus and tablet, inc Dabbler)	£135.00
WCU5	**Wacom UltraPad A5** (stylus and tablet)	£259.00
WCU4	**Wacom UltraPad A4** (professional stylus and tablet)	£359.00
VR256	**256K VRAM Chips** (adds more colours)	£15.00
VR512	**512K VRAM Chips** (adds more colours)	£25.00
VR9A	**1Mb VRAM DIMM** (for 7200, 7500, 8500)	£45.00

PROGRAMMING

HYPC	**HyperCard 2.3** (new version, more power)	£89.00
CDWG	**Metrowerks Code Warrior Gold v.9** (PowerMac compiler)	£255.00
CDWJ	**Discover Programming with JAVA**	£69.00
THKC	**Think C 6.0** (the leading Mac app development tool)	£65.00
FTBS	**FutureBasic II** (the best Basic for Mac, inc. PG Pro)	£179.00

UTILITIES

	PRODUCTIVITY ENHANCERS, FILE & DISK MANAGEMENT	
ATMC	**ATM Deluxe** (manages and anti aliases fonts)	£49.00
EASE	**At Ease 3.0** (secure Finder replacement)	£35.00

EDUCATION

		inc VAT (ex VAT)
AMAN	**Amazing Animation** (cool animation for kids)	£64.63 (£45)
KDMH	**KidsMath** (takes kids from counting to arithmetic)	£34.08 (£29)
KDPX	**KidPix II** (wonderful paint program with sound effects)	£34.08 (£29)
NMBM	**NumberMaze** (award winning arithmetic tutor)	£41.03 (£35)
RDMZ	**ReadingMaze** (letter recognition to sentences)	£41.03 (£35)
TYEN	**Typing Instructor** (good training from basics to touch)	£29.38 (£25)

CD ROM

		inc VAT (ex VAT)
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ARTT	**Arthur's Teacher Trouble** (interactive story book)	£34.08 (£29)
ARTB	**Arthur's Birthday** (more Arthur)	£34.08 (£29)
CRWRCD	**Creative Writer** (DTP for kids)	£25.85 (£22)
FNARCD	**Fine Artist** (great fun paint program)	£25.85 (£22)
LJZCD	**Logical Journey of the Zoombinies** (rave reviewed)	£29.38 (£25)
HHHS	**Harry and the Haunted House** (the new best seller)	£34.08 (£29)
KDPCD	**KidPix Studio** (KidPix plus animation)	£29.38 (£25)
WTSCD	**Mr Wonder's Toyshop** (storytelling, music, rhyme)	£29.38 (£25)
RUFF	**Ruff's Bone** (adventures with Ruff the dog)	£34.08 (£29)
HARECD	**Tortoise and the Hare** (the epic race)	£34.08 (£29)
	REFERENCE	
3DAT	**3D Atlas** (simply wonderful)	£41.03 (£35)
MAGCD	**Art Gallery** (Microsoft's tour of the National)	£34.08 (£29)
BKSCD	**Book Shelf** (superb, for everyday reference needs)	£45.83 (£39)
CINI	**Cinemania 95** (19000 movie reviews and more)	£29.38 (£25)
DINO	**Dinosaurs** (the "must have" CD of the year)	£29.38 (£25)
NCRT	**Encarta '96** (fantastic multimedia encyclopedia)	£64.63 (£45)
GRLCD	**Groliers Encylopaedia 95** (21 vols, 9 million words!)	£45.83 (£39)
LLVCD	**Le Louvre** (tour the famous Paris Gallery)	£41.03 (£35)
MICD	**Musical Instruments** (Microsoft's excellent entry)	£29.38 (£25)
MPCCD	**Monty Python's Complete Waste of Time** (not!)	£34.08 (£29)
OEDCD	**Oxford English Dictionary** (the whole thing)	£264.38 (£225)
REDCD	**Red Shift** (superb astronomy program)	£41.13 (£35)
UHBCD	**Ultimate Human Body** (Dorling Kindersly's one)	£34.08 (£29)

ENTERTAINMENT

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		BEST SELLING GAMES ON CD	
1)	MRTHCD	**Marathon II** (can you resist?)	£64.63 (£45)
2)	DOM2	**Doom II** (you may have heard of this game!)	£34.08 (£29)
3)	MYST	**MYST** (magical mystery adventure)	£41.13 (£35)
4)	SIMCC	**Sim City 2000 Collection** (with extra goodies)	£45.83 (£39)
5)	PRPCD	**Prince of Persia I & II** (two of the best ever)	£22.33 (£19)
6)	ALRC	**Al Unser Jr's Racing** (arcade car racing)	£25.85 (£22)
7)	DKFCD	**Dark Forces** (brilliant game based on Star Wars)	£41.13 (£35)
8)	PGA3	**PGA Golf III** (more challenging games)	£45.83 (£39)
		BEST SELLING GAMES ON FLOPPY DISK	inc VAT (ex VAT)
1)	ERIC	**Eric's Ultimate Solitaire** (a dozen patience games)	£41.13 (£35)
2)	A10A	**A10 Attack** (the best flight sim around)	£45.83 (£39)
3)	F18H	**F/A18 Hornet** (from the creators of Hellcats)	£57.58 (£49)
4)	ITG10	**10 Intelligent Strategy Games** (backgammon...)	£34.08 (£29)
5)	BRDG	**Bridge** (not the Golden Gate but the card game)	£28.20 (£24)
7)	FLSM	**Microsoft Flight Simulator** (realistic, accurate)	£41.13 (£35)
8)	LEM3	**Lemmings/Oh No! More Lemmings Bundle**	£25.85 (£22)
		NEW GAMES ON CD	inc VAT (ex VAT)
BRTM		**Buried in Time** (sequel to Journeyman Project)	£34.08 (£29)
IFDCD		**In the First Degree** (play a murder prosecutor)	£41.13 (£35)
DIGCD		**The Dig** (Steven Spielberg space adventure)	£39.95 (£34)
YKJCD		**You Don't Know Jack** (fantastic quiz show)	£25.85 (£22)
		NEW GAMES ON FLOPPY DISK	inc VAT (ex VAT)
ARCD		**Arcade** (collection from Microsoft)	£22.33 (£19)
ISHD		**Ishido** (Chinese strategy game)	£25.85 (£22)
SRGV		**Sargon V: World Class Chess** (title says it all)	£19.98 (£17)

BOOKS & TRAINING

		BEST-SELLING BOOKS	
1)	BK4075	**Mac Bible 5th Edition**	£29.95
2)	BK5010	**Internet Starter Kit Mac**	£27.50
3)	BK2180	**Macworld Photoshop V3.0 Bible**	£38.99
4)	BK2016	**Photoshop Wow Book**	£32.95
5)	BK6035	**Quark Xpress Book 4th Ed.**	£29.99

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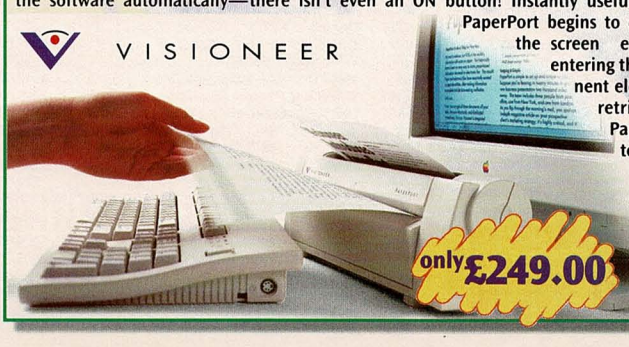

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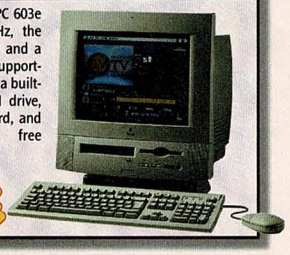

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•PowerPC 601 at 120MHz •Integrated FPU and 32K cache •16MB of RAM, expandable to 256MB via 4 DIMM sockets •256K cache •1.2GB SCSI hard disk •8-speed CD-ROM •Three PCI expansion slots •Ethernet •Stereo audio input and output support 16-bit audio and up to 44.1-kHz sampling rate •1MB of VRAM, expandable to 4MB •Support for display resolutions of up to 1,280 by 1,024 pixels •24-bit color up to 1024- by 768 pixel resolution •Refresh rate of up to 75 Hz

8500/180 16/1.2Gb/CD/Cache

•PowerPC 604 at 180 MHz •Integrated FPU, 32K cache •16MB of RAM, expandable to 512MB •256K level 2 cache •1.2GB SCSI hard disk •8-speed CD-ROM •Three PCI expansion slots •Ethernet •Composite and S-video video input and output •24-bit video input •24-bit video output • Support for NTSC and PAL •2MB of VRAM, expandable to 4MB •Support for display resolutions of up to 1,280 by 1,024 pixels •24-bit color up to 1,152- by 870-pixel resolution •Refresh rate of up to 75 Hz

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•PowerPC 604 at 200 MHz •Integrated FPU and 32K cache •High-speed system bus (up to 50 MHz) •32MB of RAM, expandable to 768MB via 12 DIMM sockets •4MB of ROM •512K level 2 cache •Internal 2GB high-performance SCSI hard disk •Internal 8-speed CD-ROM drive •Six PCI expansion slots •Ethernet •16-bit stereo sound input and output ports •2MB of VRAM, expandable to 4MB •Support for display resolutions of up to 1,280 by 1,024 pixels •24-bit color up to 1,152- by 870-pixel resolution •Refresh rate of up to 75 Hz •Third-party displays, including VGA and SVGA monitors

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5400B	**Performa 5400/180 16/1.6Gb/8*CD/TV 28.8 Modem *(Family Mac)***	£1725.00
6320A	**Performa 6320 12/1.2Gb/8*CD including 15" Multiple Scan Display** & software	£1225.00
6320B	**Performa 6320 12/1.2Gb/8*CD including 14" Multiple Scan Display** & software	£1175.00
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6400B	**Performa 6400/180 16/1.6Gb/8*CD/28.8Modem/ 15" AudioVisual Display *(Home Office)***	£1645.00
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AW72B	**AWS 7250/120 16Mb/1.2Gb/CD/256k Cache Internet Web Server**	£2425.00
AW85A	**AWS 8550/132 24Mb/2Gb/CD/512k Cache & AppleShare 4.2.1**	£4595.00
AW85B	**AWS 8550/200 24Mb/2Gb/CD/512k Cache Internet Web Server**	£4445.00

POWERBOOKS

P53F	**PowerBook 5300ce 32/1Gb/Modem**	£3449.00
P23A	**PowerBook Duo 2300c 8/750**	£1925.00
P23B	**PowerBook Duo 2300c 20/1Gb/Modem**	£2625.00
P23D	**PowerBook Duo Dock Plus**	£649.00
NMP6	**Newton MessagePad 120 v2.0**	£339.00
NMP8	**Newton MessagePad 130 v2.0**	£499.00

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M14D	**14" MultiScan**	£245.00
M15D	**15" MultiScan**	£299.00
M15V	**15" MultiScan AV**	£359.00
M17E	**17" MultiScan 1705**	£525.00
M17F	**17" AppleVision 1710**	£665.00
M17V	**17" AppleVision 1710AV**	£745.00
M20D	**20" Colour**	£1275.00

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L16A	**LaserWriter 16/600 PS**	£1375.00
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ACCESSORIES

MSADB2	**ADB Mouse II**	£29.00
CD6A	**CD 600 external drive**	£225.00
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GEOx	**GeoPort Telecoms Adaptor**	£99.00
KB	**Keyboard, Apple Design**	£65.00
KBAA	**Keyboard, Adjustable**	£149.00
MIKB	**PlainTalk Microphone (AVs/PowerMacs)**	£19.00
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P14B	**PowerBook 140/145/160/170/180 Battery**	£45.00
P5IB	**PowerBook 500 Battery**	£69.00
PWPA	**PowerBook 100-180 AC Adaptor**	£49.00
P5AC	**PowerBook 500 AC Adaptor**	£59.00

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S75A	**System 7.5 Upgrade on floppy disks**	£65.00
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SOFTWARE - Mac OS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, 120 Letters, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Internet Connection Kit, MacLink Plus, Performa Clickart, Full Throttle, HyperCard Player, Descent, Thinkin' Things 3, Sammy's Science House, PowerPete.

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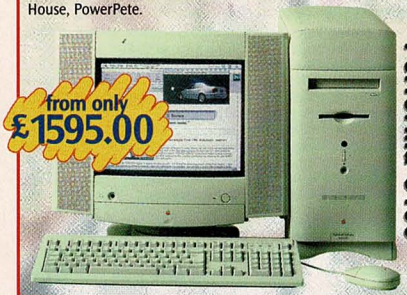
SOFTWARE - Mac OS 7.5.3, Best of European Soccer, Apple Telecom 3.0, Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa Clickart, Thinkin' Things 3, Sammy's Science House, PowerPete.



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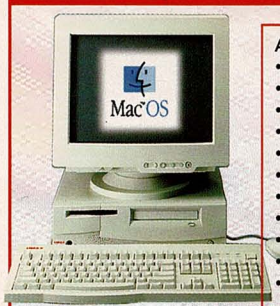

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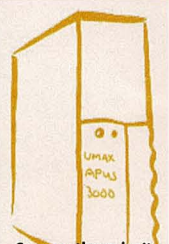

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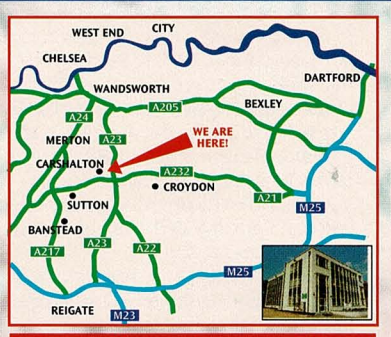

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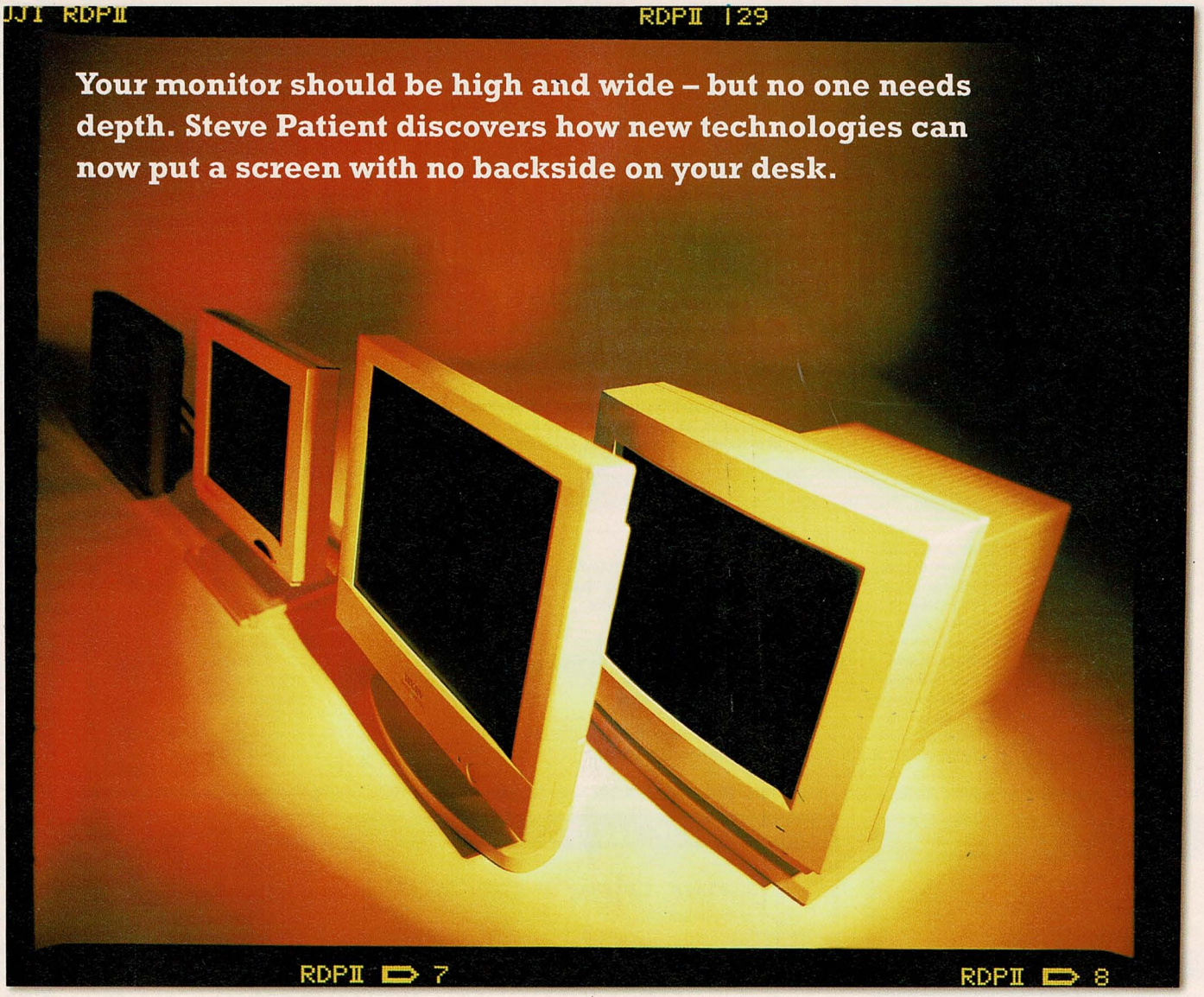


Your monitor should be high and wide – but no one needs depth. Steve Patient discovers how new technologies can now put a screen with no backside on your desk.

If you've ever had the chance to work with a large monitor, you'll know just how wonderful a huge screen is – and how ugly, heavy, unwieldy, hot and irritating the rest of the casing that comes with it is. Forget making monitors ever-bigger – the time has come for a big display with less behind. Any alternative monitor needs good colour, brightness, reliability, high contrast, a fast refresh rate and a wide viewing angle. It would help, of course, if it ran on low voltages and used less power than present models – oh, and it would be good if it was cheap too...

When it comes, such a monitor will change the way we view computers – literally. For a start, only the traditional monitor stops every computer from being a portable. A large, low-cost, flat-panel display would mean that you could make a PowerBook your default choice, instead of an expensive luxury.

Unfortunately, while the time for such a miracle has arrived, the technology is a tad tardy. There are several promising lines of development but none of them are going to put Radius (the video and monitor giant) out of business just yet. In fact a Radius spokesperson told MacFormat the company wasn't impressed enough with any FPD (flat panel display) to want to market it.

Most current FPD technologies require frighteningly expensive and advanced techniques to manufacture, while the big vacuum tubes currently in use can be made perfectly well using 50 year-old methods. However, the people who funded the development of Velcro and Teflon are researching FPDs: the American military thinks they're important enough to attempt creating a complete new US industry. Flat screen displays, it turns out, are essential to the war effort.

But while military imperatives have driven many computer advances over the last four decades, it's the consumer electronics market which will eventually make flat screens commonplace – and they'll be made in Japan.

Flat panel displays hold out a promise of light, flicker-free, distortion-free, low power, high-resolution displays to die for. A lot of effort is being put into making them affordable. They were invented in the US in the early 1960s by RCA, General Electric and Westinghouse, with IBM doing the first work on plasma displays in the early 1970s. But it was Japanese

companies, with Sharp in the lead, who invested in factories to make them commercially viable during the 1980s. US companies decided, in their wisdom, to let someone else take the risk – and, as it turned out, the profits.

As a result of this short term commercialism, Japan's Sharp now dominates the market for active matrix Liquid Crystal Displays (AMLCD)– the best flat panel currently available for portable computer displays. It's a profitable market which will demand 15 million AMLCD screens in 1997 – though world production capacity is currently only 12 million.

Active matrix LCD screens are descended from earlier LCD screens, which were slow, had poor contrast, low brightness, no colour and just a few levels of grey. Even so, they sold because there was nothing else comparable available. The modern AMLCD screen is a far more desirable affair. It's a rock-steady, full colour, fast, reasonably high contrast display, perfectly capable of replacing a traditional monitor. It has other attractions, too. LCDs produce no radiation, consume few watts of power, work with low voltages and are optically flat and so extremely easy on the eyes. People working with them report less stress, eye-strain and headaches than when working with a traditional monitor.

Ancient history

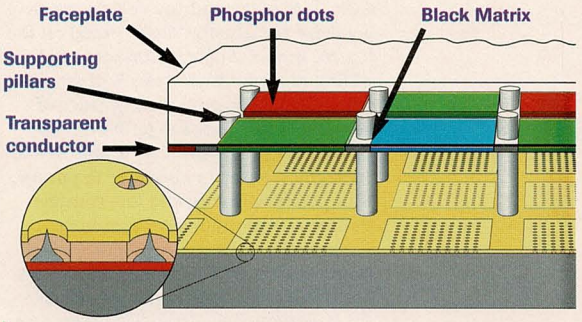
In the early days, making AMLCD screens was a depressing affair. Factories were extremely expensive to tool up, and manufacturing yields were heart-breakingly low – more than half of all screens made just had too many defective LCDs to sell. As a result, more than half the cost of the first portable computers using AMLCDs was in the screen.

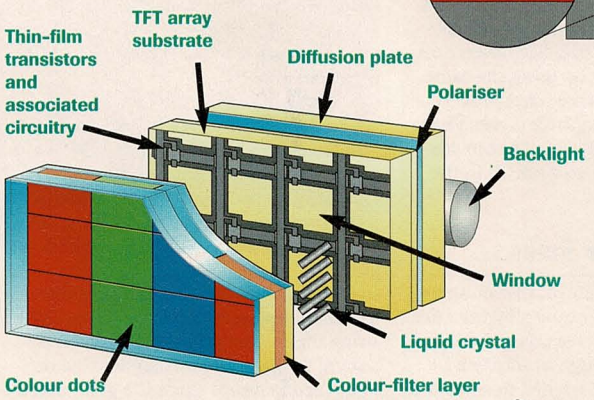
Yields are now more respectable and prices have dropped dramatically. At the same time, screen sizes have increased from the original 640 x 480 pixels to 800 x 600 for everyday use, and even higher if your pockets are deeper. One obvious result of this is the new range of low-cost PowerBooks (see News, MACFORMAT 43). Another is the increasing availability of

Flat screen technologies

Field emission display

One of the most promising new technologies, FED uses a phosphor coated screen like current monitors, but with thousands of tiny cathode emitters instead of one huge tube to fire electrons and make them glow.



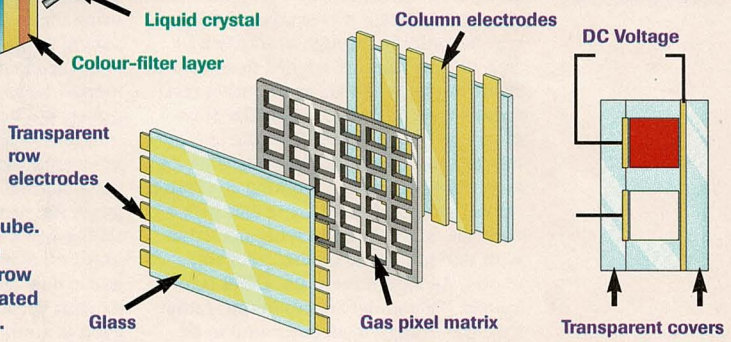


Active matrix LCD

The current favourite technology, also known as Thin Film Transistor (TFT), this uses a transistor to turn each colour of each pixel on or off. (In practice, there's a couple of back-up transistors for each pixel too.)

Gas plasma

Each pixel in a plasma panel is a tiny fluorescent tube. Pass a current through one column electrode and one row electrode, and the tube located where they intersect glows.



stand-alone flat panel displays for use as monitor replacements. We tried a few out (see below and overleaf), and had to be separated from them with a crowbar. Indeed, if our experience is anything to go by, you will be very happy to pay a premium for a desktop flat panel display.

With big profits in the air, tube manufacturers, including Philips and Matsushita, as well as too many semiconductor companies to list, are working on new flat panel display technologies to rival active matrix LCDs. However, they don't just want to shoehorn in on the portable computer market. The really big prize is the chance to sell everyone a new TV. Just as audio CDs enabled companies to sell everyone a new music machine, flat screens will change the way we use TV because you can put one anywhere. ➤

CTX PanoView 600

This is an absolutely gorgeous display capable of 800 x 600 pixel resolution at up to 75Hz vertical refresh for a rock steady display – if you're using a Mac with a VGA-style output. On older Macs you're limited to 640 x 480 and you need the socket adaptor, but you can use the OSD (On Screen Display) menus to force the smaller display to fill the screen. (That's not ideal, though – all it does is make the pixels bigger, making everything blocky.)

The display itself is totally flat, and though 12.1 inches may not sound like a lot (well okay, it does to some of us), the CTX actually gives you a larger display area than a 14-inch monitor and even some 15-inch monitors. And there's no image distortion. If a line is meant to be horizontal or vertical then it is: circles are also perfectly circular and so on.

The CTX also has one-watt speakers built-in with a variety of stereo options, again available from the OSD menus. The sound is perfectly acceptable, or you can take it out to three-watt external speakers.

For the technically minded, the TFT screen has a pixel pitch of 0.31mm, and it claims to be able to display 16.7 million colours with a contrast ratio of 100:1 – which is a little unbelievable. Set to millions of colours, it is noticeably better than the 256 colour display – but not noticeably better than when on the thousands of colours setting.

The overall size, including the tilting stand (which has a tendency to foul the connectors if pushed too far back), is just 12.8 inches by 10.6 inches by 7.2 inches deep. All power, video and audio cables are included.

■ The CTX PanoView 600 costs £2,520. Contact CTX on 01923 810810.

AMLCDs can't cut it, though – they simply don't scale up economically, and there are other limitations too. The hideously complex screens are fragile and difficult to make with no defects, meaning there are usually "dead" pixels on the screen. In fact, Apple is rumoured to be willing to accept higher levels of screen defects to help keep down the price of the new PowerBook range. Worse, the viewing angle for AMLCDs is only about 30 degrees, and you also have to put up with poor luminance and low contrast compared with traditional monitors.

Internally, each colour of every pixel in an active matrix LCD requires at least one transistor to turn it on and off. All the transistors have to be laid down on a glass substrate in one go using the same techniques used to make microprocessors. In practice, to improve yields, Sharp build in triple redundancy. You can see the basic elements of an AMLCD in the diagram on page 59.

Akia produces

The Japanese computer firm Akia has recently announced that it will be manufacturing slim LCD monitors. See this issue's News for the latest details on this development.

When the glow fades...

What's more, because AMLCDs don't use phosphors, which continue glowing after the electron beam leaves them, the light is either shining through or trapped, so high refresh rates are needed to achieve a stable display – 85MHz or so, rather than today's typical 60MHz to 75MHz. This causes problems. As Ian Conchie of monitor manufacturer Iiyama told us: "A high resolution screen working at 85MHz refresh rate needs a 250MHz dot clock – which is on the limits of what's practical with standard video cabling." For this reason, AMLCD screens use LVDS (Low Voltage Differential Signal) output rather than the straight analogue found in all standard VGA monitors. This means your Mac needs a special connector card to connect to your monitor. Ian Conchie adds: "Expect more flat screen manufacturers and large monitor screen manufacturers to move to LVDS next year." Just what you needed – another new standard to have to reach before you can use the new technology.

Despite the huge amounts of money invested in active matrix LCD factories – and the consequent pressure to continue using them – the problems involved in scaling up their size for use in consumer applications means there is a guaranteed market for any competent new FPD technology if it's either better or cheaper.

It now looks as if the technology IBM pioneered – taken up by a Japanese company, naturally – will be the winner for larger flat panel displays. Fujitsu started selling 640 x 480 pixel, 21-inch FPDs based on plasma panels in March 1995 and is now launching a high-resolution 42-inch version. Big is beautiful and even at around $10,000 (about £6,450) each, they're still selling. But, by 1997, the company expects the price to be half what it is now, and still dropping.

Plasma panels are basically an array of tiny fluorescent tubes, lined up side-by-side. Imagine two sheets of glass, one with wires running vertically, one horizontally. Sandwich a waffle-like grid between them and fill the waffle holes with a mixture of Helium, Krypton and Xenon. On the viewing side you cover groups of cells with phosphors which emit red, green or blue light respectively whenever ultra-violet light shines on them. Now all you have to do is put a high enough voltage across a cell using the two wires which uniquely define it, and an ultra-violet emitting plasma is created in the cell. The higher the voltage, the more ultra-violet you get. The phosphor then glows, just as it does on a monitor or TV. Like an ordinary monitor it can be viewed over an angle of better than 160 degrees, and it is bright and shows any number of colours. Even more importantly, plasma panels are relatively simple to make and costs only increase linearly with size.

According to Ron Crow at Fujitsu, "Sales are mainly for specialist applications – for example, we've put six into a [share] dealing room in Frankfurt. They just hang on the wall."

Fujitsu has committed 60 billion yen to building new factories for plasma screens and is now knocking them out

The Eyes Have It

Why not forget having a screen altogether and just wear the display? This may sound like a solution straight out of Star Trek, but it does have a lot going for it, and can be done so cheaply that the screens can be treated as disposable.

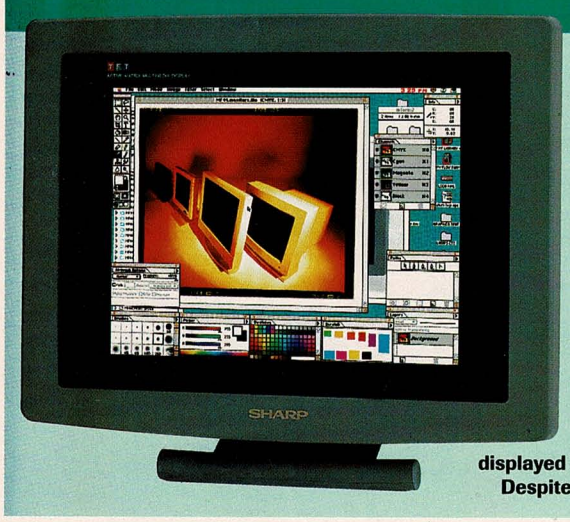
Philip Alveda, a postgraduate at MIT in the US, has found a way to make a chip with colour pixels built into the surface, each just a few micrometres across. The colour is created by diffraction gratings, like the colour on a beetle's back. The whole chip is actually just a few millimetres across.

Each grating on the chip is made as a series of tiny grooves, with black hollows and reflective tops. Each of these produces its own tiny rainbow. By varying the angle of reflection of the gratings assigned to be blue, red and green, only the desired colour is visible to the viewer. The reflection angle is varied by changing the spacing of the grooves, and the unwanted light is trapped by a mask suspended above the chip.

These chips are surprisingly simple to make and Alveda has set up a company called MicroDisplay Corporation to produce them. It says the first batch of cheap screens should be on sale in early 1997.

For personal use the display will hang in front of your eye and can have as high a resolution as you like. Since they're cheap and portable, there's no reason why everyone shouldn't be able to have one (apart from the risk of walking into walls!). In fact, far from being just an FPD solution, microdisplays will make cheap, light, high-definition virtual displays a reality too.

Sharp QD-100MM



The Sharp TFT active matrix display works at a maximum of 640 x 480 pixels, and a less than impressive 60Hz vertical refresh. It also has a 60:1 claimed contrast, though it looked as good as the CTX in office lighting. Despite the lower refresh rate, flicker is only perceptible on groups of parallel horizontal lines – such as title bars.

The actual diagonal screen size is 10.7 inches – perfectly usable, but text does tend to appear pixellated. Images however look good, with a claimed 16.7 million colours (24-bit) display – though there's little difference between photos displayed at millions or thousands of colours.

Despite the disappointing resolution, the Sharp screen is a delight to work with – rock solid, colourful and fast. Unfortunately, the supplied audio cables wouldn't connect to our test PowerMac 7200, but we were able to rig up an alternative (an AV Mac has the necessary connectors). The sound quality is perfectly acceptable. A volume control is set into the right side of the display, along with a brightness control and a switch to move between video and computer display modes.

Interestingly, Sharp warrants that of the total 921,000 dots available, less than 35 will be unusable. On test, 99.996% were perfect. Despite it being a really fine display, the low resolution rules it out for everyday use – unless you need it to double as a video screen.

■ The Sharp QD-100MM is £6,900 (but is due to be replaced by a model costing £3,975 "in the near future"). Call Sharp, 0800 262958.

The future

The UK's Cambridge Display Technologies and US-based Uniax are racing to make a simple, polymer flat panel display – made using straightforward printing techniques and a plastic with unusual properties called a conjugated polymer. The prize is the $5.3 billion FPD market – a market set to double in size next year.

The properties of conjugated polymers were first noted in the 1970s, but it wasn't till 1990 that a Cambridge University team made a light emitting diode based on the material – it was a major breakthrough.

At the moment the polymer screens are slow, dull and don't last long – a few seconds in some cases – but they're improving all the time. They hold out the interesting prospect of a cheap screen you can roll up and put in your pocket. If someone cracks the idea, you could soon see disposable screens reaching the market.

At the other end of the scale, Shuji Nakamura, a physicist at Nichia Chemical Industries in Japan, has produced a semiconductor laser based on gallium nitride which produces ultra-violet light. Previously known materials only produced light at the red end of the spectrum, but the UV can be used to make other colours as in gas plasma flat panels.

So now, an FPD based on semiconductor lasers can be made for the first time. They're relatively simple, low-power devices with a lot of promise. Blue was always the problem – no blue, no colour screen. These new lasers are already being developed for use in advanced CD-ROM drives – for reasons much too bizarre to explain, the bluer the light the more information you can cram onto a single disc.

Expect to see the first prototype laser semiconductor screens early next year. After that, who knows?

very quickly indeed, at a rate of around 10,000 units a month.

Apart from plasma screens, there are a whole slew of interesting alternative possibilities. The one with the record for having the most promise for the longest is the electro-luminescent display (EL). This has virtually everything going for it except success.

Electro-luminescent screens are basically a solid sheet of plastic made of several extremely thin layers – some measuring just a micron. An area glows when a voltage is put across it. The military love them and Planar Systems in the US makes most of them. They're ultra reliable, lasting about four times as long as a traditional monitor, they're incredibly robust, fast, have a 160-degree viewing angle, can produce a full range of colour and are less than 6mm thick. But they're expensive to make, not nearly as bright as a conventional monitor and need an electricity supply of around 200v to work. Also, they're made using microprocessor techniques, so it's as hard to make large EL screens as it is to make large AMLCD screens – though 14-inch versions are available and even larger displays have been made as prototypes.

Of course, another really neat FPD solution would be to flatten an ordinary monitor, which is exactly what the Field Emission Display (FED) does. Instead of having a hot cathode emitting a single stream of electrons which are then swept across a screen, each phosphor dot has its own, individual, cold cathode. It's easier to make an array of millions of cathodes – each a microscopic cone pointing at the screen just a fraction of a millimetre away – than either electro-luminescent displays or AMLCDs. Diamond films are the favourite material for these cones – they sound exotic but are routine in microprocessor manufacturing.

Field emission displays are extremely promising, not least because they can use existing phosphors and other monitor technology. It's mostly US companies, including Raytheon and Texas Instruments, developing FEDs, though Canon is also working on them. However, it takes around two-and-a-half years to move from working prototypes to working factories, which effectively means that FEDs are at least 18 months behind plasma screens.

Future projections

Of course, another way to get a large flat display is to project an image on to a flat surface. This technique is used to make large TV displays for video presentations. However, the projectors tend to be heavy and power-hungry, while the image can be fuzzy.

Among the new display technologies being explored, the most intriguing is Texas Instruments' Digital Micromirror Device (DMD). This is basically a chip 37mm x 22mm covered in tiny mirrors, each of which can be twisted on its own individual pivot. The array is 2,048 x 1,152 – a total of 2.3 million mirrors. It's all made using chip fabrication techniques. Because they're so small, these mirrors can be flipped very quickly – thousands of times a second. Using three chips to reflect light in the three primary colours, Texas Instruments has demonstrated fast, bright, sharp, high-contrast, wide-view images, that can be projected on screens of up to three metres across.

Projection may yet turn out to be the best solution even for personal, large flat high definition displays, though Texas Instruments thinks the technology can be used to produce true FPDs.

As for companies who you would have expected to have a high level of interest in the FPD market, Apple itself hasn't even addressed the issue, and Radius – perhaps the best known of large screen suppliers – says it can't find a current FPD good enough to recommend. Well, if MACFORMAT was a manufacturer, we would have to disagree: we have seen the future and we want it today. Right now. Sell the house! **MF**

Monitors

You might not be able to afford a flat screen display yourself just yet... But, for the best in large monitors, check out our new Buyer's Guide, which starts on page 131.

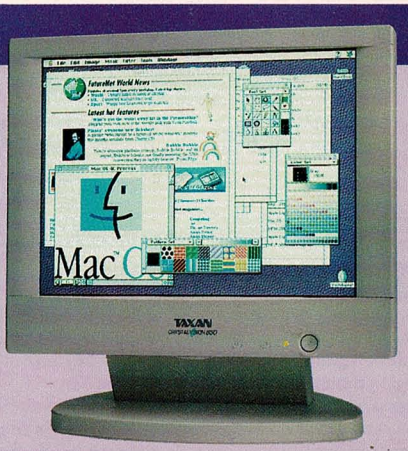
Taxan Crystalvision 650

This TFT display boasts a truly staggering 1,024 x 768 pixel resolution at 60Hz vertical refresh (on the test machine, though it can go to 75Hz at all resolutions). Unlike on the Sharp, the lower refresh didn't result in any perceptible flicker. Oh, and it's just six inches deep including the stand, and weighs 3Kg – 10% of the weight of a 17-inch monitor, with a viewing area about the same (14.5 inches).

One effect of the large display which wasn't noticeable on the smaller screens is colours varying across the display. This is a result of the small viewing of active matrix screens combined with the large size – when you look at the centre of the screen and then at the top or bottom, the viewing angle changes enough to alter the contrast and colour balance! So you won't be using this for design work any time soon. The other interesting point is Taxan's more honest claim that the 650 can display 262,144 colours – 16-bit rather than 24-bit. In fact, the colour is remarkably similar in quality to the other two screens we tested – you don't see any difference between millions and thousands of colours.

Even so, it's great to use. Don't underrate the difference it makes having pixels fixed in space. Even the best monitors have slightly fuzzy pixels because the electron beam used to create the image shifts ever so slightly between passes. This can't happen on this TFT.

Okay, technical stuff. It doesn't have built-in speakers – it's designed as a proper monitor. You access all the settings using OSD menus. The biggest drawback is a clumsy piece of design – with the leads plugged in, the plastic back panel won't fit back on! And oddly, the screen is squidgy, not hard glass. But it's lovely. Sell the car and buy one right away.



■ The Taxan Crystalvision 650 costs £3,406. Contact Taxan, 01344 484646.

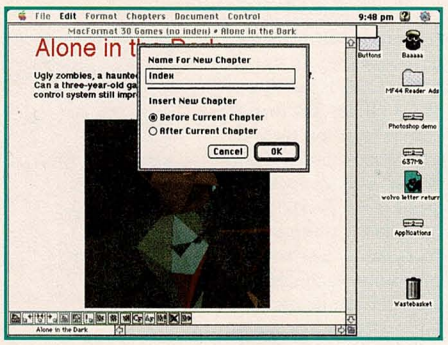
Hints for Hot Links

To be able to link pages together is an important feature of any interactive production. Follow this simple tutorial and you'll be able to start creating your own hot links using *DOCMaker*.

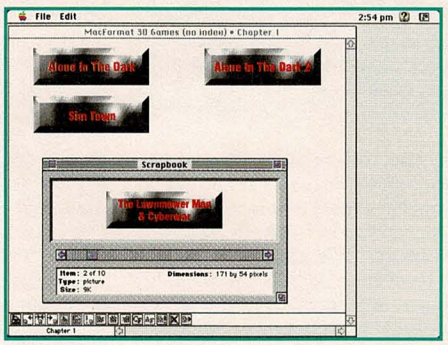
Find *DOCMaker* in the Resources folder

In MACFORMAT 43 we showed you how to put together a software-based magazine using *DOCMaker*. Once created, *DOCMaker* files can be easily distributed to anyone with a Mac without the need for any other software, as the viewer engine is embedded into the files. This easy to use application enables you to produce feature-packed documents that include hot links to QuickTime movies and CD quality sound.

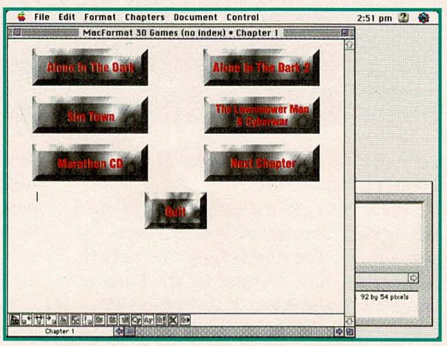
We have included four example files in the **Tutorials** folder on our Cover CD, so you can see what can be produced with this versatile package. Also, in the **Resources** folder of this issue's Cover CD is the brand new version of *DOCMaker 4.7*. To install it, simply double-click on the **Installer** and follow the on-screen instructions. New features include the ability to create bigger documents (you can now have up to 100 chapters), better compatibility with older Macs and a better saving process, which keeps your files safer until each **Save** is fully written. In this tutorial we show you how to add clickable graphics that enable you to link an Index section to different pages of your document. **COLIN DALZIEL**



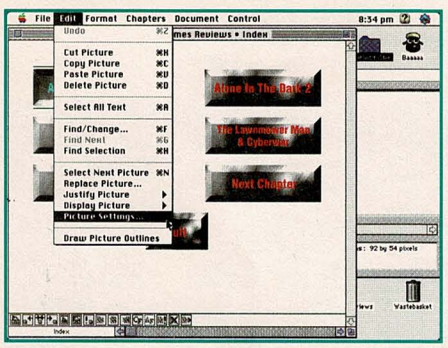
1 Open *DOCMaker* and, at the prompt, select the **MACFORMAT 30 Games (no index)** file which you'll find in the **Tutorials** folder on the Cover CD. First, add a new chapter (or page) to this document by selecting the **Insert Chapter** option from the **Chapters** menu. Be sure to insert the new chapter before the current chapter by clicking on the correct option in the dialogue box. You now need to place the button images into the **Scrapbook** (in the **Apple** Menu), so you can **Copy** and **Paste** them into your document before making them active.



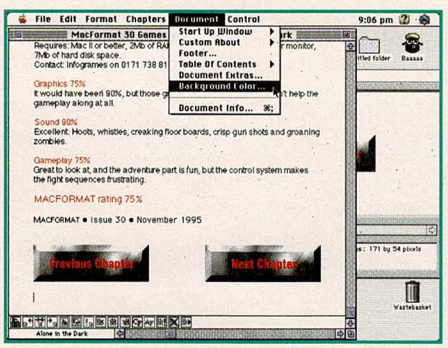
2 Open up your **Scrapbook,** then locate the **Tutorials** folder on the CD and open the **Buttons** folder. The buttons have been saved in two formats: as PICT files and as picture clippings. If you have Drag and Drop installed (System 7.5 only), you can drag each of the picture clippings onto your **Scrapbook** and the images will instantly be placed there. If this option is not available, open the images with an image manipulation package such as *Graphic Converter* (in the **Resources** folder on the Cover CD), then **Copy** and **Paste** each image into the **Scrapbook.**



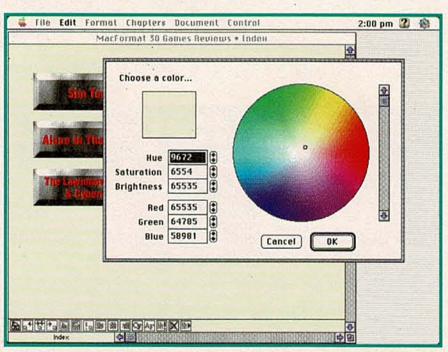
3 You can now **Copy** and **Paste** each of the images from the **Scrapbook** into the document on the first page. As each image is placed on the page, use the **Image Justification** option from the **Edit** menu to move it so that you can get two to appear on a single line – one justified left and the other right. By then adding five returns you will move your cursor down the page enough to place the next two buttons. Repeat this operation until all the buttons are in place. The final button is the **Quit** button, which you should centre to give it some prominence.



4 Next you need to make the buttons active. With the cursor at the top of the page type **[command] N** to select the first button, which should be the **Alone In The Dark** button. With this button highlighted, select the **Picture Setting** option from the **Edit** menu. A dialogue box will appear which enables you to specify what action will take place when the button is clicked. As you want the button to take you to a review, select **Go To Another Chapter** from the **Picture Action** pop-up menu. You have to enter the number of the chapter you want, which for the *Alone in the Dark* review is **Chapter 2.**



5 Repeat step 4 for all the buttons, moving the cursor to each button to link it to its respective chapter. Again, use the **[command N]** option to select each of the buttons in turn – for the **Quit** button remember to select the **Quit To The Finder** option. To make navigation easier, add two buttons to move back and forth between chapters. Move the cursor to the bottom of the **Alone in the Dark** page. Paste in the **Previous Chapter** and **Next Chapter** buttons, as you did in the index in steps 2 and 3. Again select the **Picture Setting** option from the **Edit** menu but this time select **Next** or **Previous Chapter,** as appropriate, for the buttons.



6 The final touch is to change the colour of your document. Select the **Background Colour** option from the **Document** menu. You will then be presented with a standard colour-picker. Find the point on the wheel where your chosen colour is and click. Save the project and then quit out of *DOCMaker* to put your creation to the test. Simply double-click on the Project Icon and test all the links you have added by double-clicking on them. In this tutorial you have seen how to navigate using active images. You can also use clickable images like these buttons to show QuickTime movies, play sounds and even launch applications.

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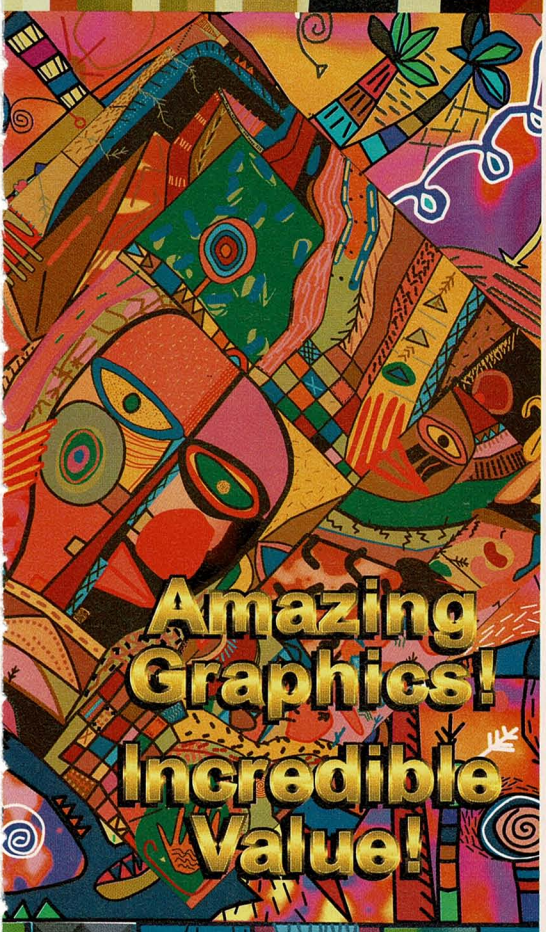

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More relations...

FileMaker Pro 3's relations are more powerful than you might at first imagine. Derek Smith takes the plunge and meets the family, uncovering more useful tricks and techniques...

ON THE CD

Find these databases on the CD in the Tutorials folder

Last issue we looked at how to create a basic relational database in *FileMaker Pro 3*, and we saw how these relationships give you tremendous flexibility and control over your data. However, there's even more power to this relational business than first meets the eye.

This month we'll create a contacts database, used to record telephone call logs. But we need to view the logs in two very different ways. For the purposes of the tutorial, we will assume that you have a basic grasp of relationships and how to create them. If you're not sure that you do, then read either the article in MACFORMAT 43 or the relevant chapter in the *FileMaker* manual.

First things first

When you're designing a database, there's a lot of work to be done before you load *FileMaker*. Indeed, the way to a successful database is to have a clear understanding of what you want it to do before you start. This will affect the way you structure your database – that is, the way you create files and relate them together. If you make a mistake at the beginning, putting this right at a later date can take a lot of work.

So let's analyse. We want to keep basic details about various contacts such as name, birthday, and a few family details. We'll also need to keep details about each one's company – for instance the address and telephone number. If we only knew one person at each company, we could put all this data into one file. But since we usually have several contacts at any one company, we will keep company details together in a separate file. We'll then relate the files together, displaying fields from the **Company** database such as the firm's telephone number on the **Contacts** database. This way, if a company's telephone number changes, we need only alter it once (in the **Company** database) and it will update instantly on all the related contacts' records.

We also want to keep telephone call logs, so we have a record of whom we talked to, when and about what. However, this raises a problem. We clearly need to keep the call logs in a separate database, but should we relate the call logs to a contact or their company?

For instance, let's say that over a period of time we talk to three people at a company about three separate projects. If we went to the **Company** database and looked at a list of all the call logs made to contacts at that company, they would all be listed together, making it difficult to follow the three different projects over a period of time.

We could solve the problem by relating the logs to individual contacts. When we looked at a contact, we would just see all the calls made to that person, but not other people at the same company. This means that we can clearly see the progress of each project.

However, sometimes we might discuss a single project with three different people at a company, depending who was there when we phone. If we were to look at the log for any one of those three individuals, we'd only see fragments of the ongoing discussion. We would be completely unaware whether there had been other calls made to different contacts about the same project.

We need to be able to view call logs in both these ways: all the calls made to an individual contact and all the calls made to all the contacts at a company.

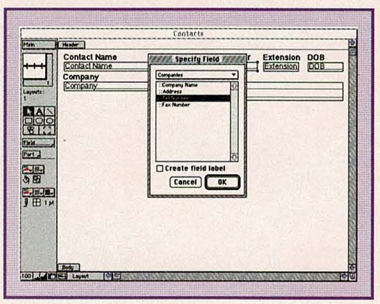
In practice, this means that on the call log record we need both the contact's and the company's name, so we can relate the record to both databases...

Portal

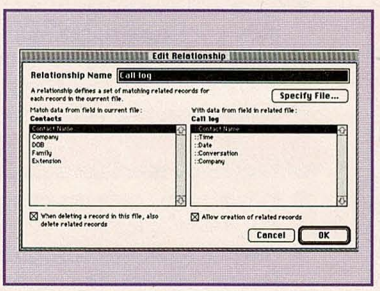
A **portal** is best thought of as a window through which you can view information taken from individual database records. Data from separate files can be viewed as a cohesive whole through the use of a single portal.

Auto Enter

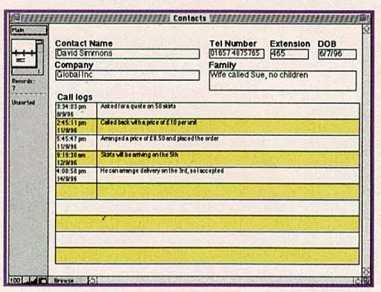
In the **Call logs** database you can **Auto Enter** the creation time and date into the respective fields, as long as the log is created at the time of making the call.



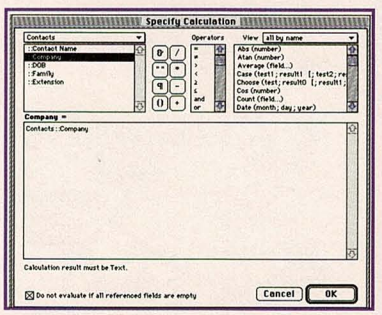
4 This relation enables you to place fields from the Companies database, such as Telephone Number, into the Contacts database. There's no need to create a portal as each company only has one telephone number.



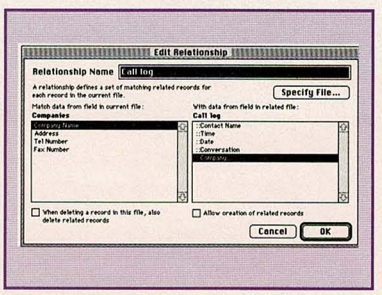
8 Relate the Contact Name field in the Contacts database to the Contact Name field in the Call logs database. Remember to tick the Allow creation of related records box. The reason for doing this is that this is the best place to create new logs.



9 If you now create a log from here, it will automatically enter the correct contact name for you by referring to your other files. You will also need to create a portal to the Call logs database, through which you can display most of the fields from that file.



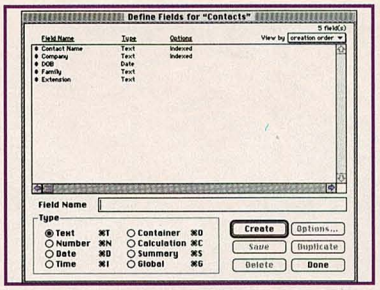
13 Now select the Company field. When you create a call log from the Contacts database, this field will refer to the Contacts database and copy the contact's Company name into this field.



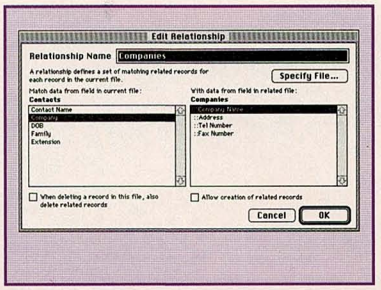
14 We now need to display call logs in the Companies database. Relate the Company field in that database to the Company field in the Call logs database – the field you have just been working on within the Specify Calculation box.

1 Our firm is engaged in contract negotiations with Global Inc, down in Devon. As we're responsible for making sure everything runs smoothly, we've decided to use *FileMaker* to keep a record of the deal's progress, and perhaps compare quotes from Global with those from other firms. We'll need to set up databases both to keep track of the various firms we're dealing with, and the many potential contacts we meet within those firms.

But most vital of all is coming up with a clear, comprehensive way to monitor the deal itself. So we'll need to use the power of relational databases so we can chart each different strand of ongoing discussion, no matter how many times it might get swapped about from person to person. After all, the success of the deal depends on it...



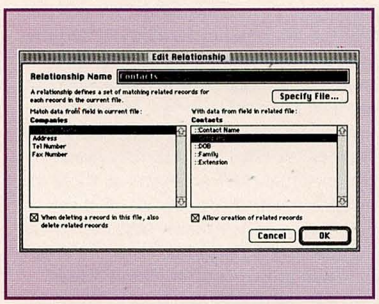
2 Begin by creating two databases: one for company details (Companies) and the other for contact details (Contacts). In the latter database, you will need a field for the company that your contact works for (called Company here). Add fields for any other details you want to include.



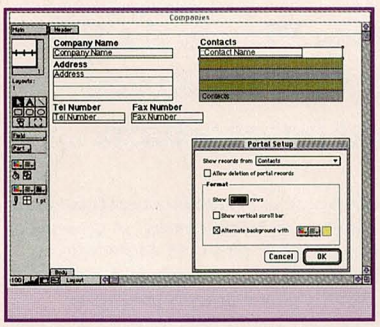
3 Within the **Contacts** database, you now need to relate the **Company** field to the **Company Name** field in the **Companies** database. This is done with the **Edit Relationship** dialogue box. There's no need to allow for the creation of related records with this relationship.

In pieces

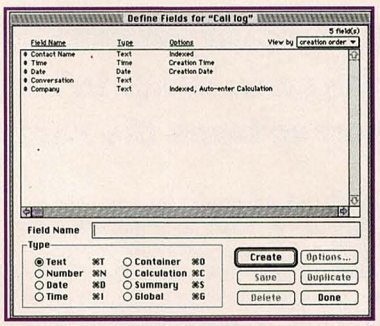
Using the demo of *FM Pro 3* from our Cover CD, you can deconstruct the databases that also appear on the CD-ROM for yourself. You'll also find a couple of extra buttons and scripts not described here.



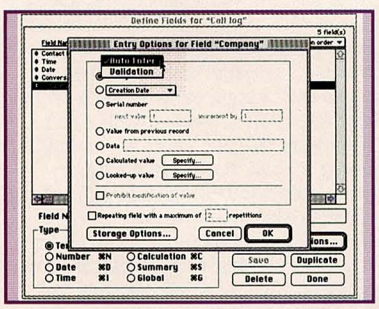
5 When you look at a company's records, you'll want to see all the contacts for that company. To do this, you'll need to relate the **Company Name** field in the **Companies** database to the **Company Name** field in the **Contacts** file.



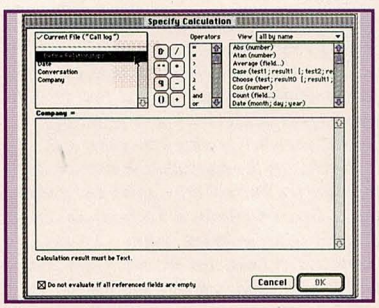
6 This time you will want to create a portal rather than a relation, because each company can have several contacts. In the portal, you will want to display just the **Contact Name** field.



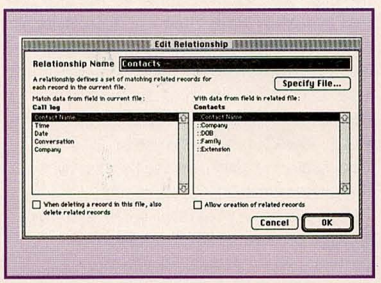
7 Now to create a database for call logs. You'll want fields for both the **Contact Name** and the **Company Name,** because you'll need to relate both of those databases to this one.



10 On each call log, you'll also want the company name automatically entered into the **Company Name** field. To do this, select the **Company Name** field and click **Options,** then choose **Auto Enter** from the pop-up menu.



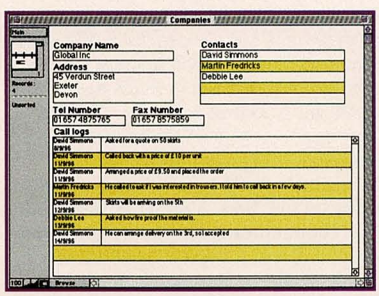
11 Click the **Calculated value** button and the **Specify Calculation** dialogue box will open. Fields from the current selected database appear in the top left box. From the pop-up menu, choose **Define Relationships.**



12 Create a relation between the **Contact Name** field in the **Call logs** database to the **Contact Name** field in the **Contacts** database. The top left box in **Specify Calculation** will now show fields from corresponding records in the **Contacts** database.

Your turn

This article is part of a series on *FM Pro 3,* and now we want to hear from you. If you've got a question or problem, let us know and we'll answer it or invite answers from other readers. If you have a clever trick that other readers could find handy, then tell us about it too.



15 In the **Company** database, create a portal to the **Call logs** database and display the necessary fields. You do not want to create logs from here, because you wouldn't know which contact they were made to.

16 Your database is finished. Phew. By making it relational and keeping the call logs in a separate database, you have flexibility over how to view these logs. In the **Contacts** database where you create the logs, you can see the logs for each person.

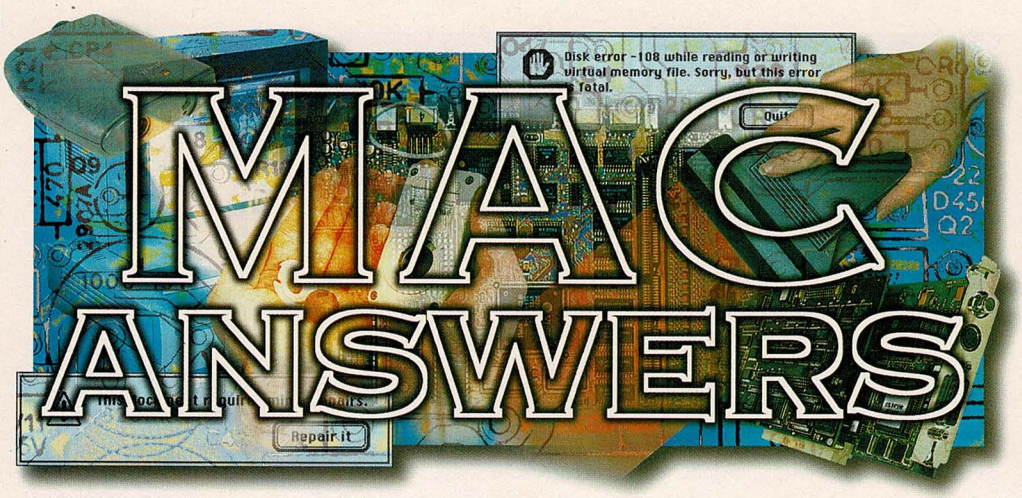
However, when you create a log you can now automatically enter the name of the company that the contact works for into the **Call logs** database. You do this by **Auto Entering** a calculation, where the calculation is simply the contents of the **Company** field in the **Contacts** database.

You should **Auto Enter** a calculation into a text field, rather than using a live calculation field, for several reasons. First, if a contact was to leave and you deleted him from the **Contacts** database, the company name would disappear from all his call logs. You would then not be able to see his past calls in the **Company** database, and the sequence of calls during your negotiations would fall apart.

Second, it's quicker. In the future you could have hundreds or thousands of logs. If each one had a calculation just to show the company name, it would slow down the whole operation of your database.

Finally, and most important, you can't use a calculation field as part of a relationship in *FileMaker Pro.* If you could, it would prevent you from seeing the call logs in the **Company** database – the only point of the field!

With these steps, you've set up a flexible database that could save hours when you can least afford the time. **MF**



MAC ANSWERS

Beneath the pleasant exterior of your Mac lurks the stuff of nightmares. Whip in hand, Lindsay Bruce shows you how to tame the rampant beast within...

In the depths of the nest of plastic, ceramics and rare earth metals that form your Mac's interior lurks a leviathan. Few people have seen it in its natural form, fewer still see the rest of the world in the same light ever again. It lives, it breathes, it... um, crashes.

It is of course your Mac's operating system (OS) – that beast which displays the Desktop, gives you cryptic error messages and grins inanely at you every time you start your Mac up. Your Mac's OS is a leviathan, composed of around four million lines of computer instruction code. It's a friendly giant most of the time, but when it's ill, it can be an evil swine. Which is why we're here really. MacAnswers refreshes the parts of your Mac other columns can't reach.

If you have a problem, fill in the form on page 69 and send it to us at MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW. Alternatively, you can e-mail us at **macformat@futurenet.co.uk** with "MacAnswers" in the subject title, or fax us on 01225 446019. Sorry, but we can't answer technical queries over the phone or reply personally because it's really dark in here and something in the corner just *moved*. Erm... anybody got a torch?

ON THE CD

Graphic Converter is in the **Resources** folder

Quantum leap

Memory

Q *I have an LC630, which I've made into a PowerMac using a PowerPC upgrade card, and I also run* RAM Doubler. *I recently purchased a Quantum 1.2Gb external drive to attach to my LC630, but am surprised by the results I get when booting from either disk.*

Purchasing the external drive enabled me to format the internal drive again and update it (the drivers get updated, I believe). On the external drive I installed System 7.5.3 and every Control Panel and Extension that came with it, plus all my own favourites. Then, on the "new" internal drive I did the same, but removed all the unwanted files that serve no purpose. I used Apple's Drive Setup *to initialise it.*

The weird thing is that if I boot from the external drive, with all those Extensions, the System takes 4.3Mb of RAM, but if I boot from my supposedly slimmed-down internal drive, 4.9Mb is grabbed! Why? There is a large difference in the number of conbtrol Panels and Extensions I use, but the slim version is taking more RAM!

Someone told me it may be to do with the drivers used by each drive. Is this the case?

Philip Roy
Via e-mail

A1. The first thing to check is that the System Folders on the internal and external hard disks are starting your Mac up in PowerMac mode. It's possible that the discrepancy in memory requirements could simply be that one disk starts the Mac up in 68K mode, and the other in PowerMac mode. PowerMac-native software, which includes many parts of System 7.5.3, requires more memory than 68K software, as there are more instructions to process. You can set the mode your Performa starts up in via the **PowerPC Upgrade** Control Panel.

2. While in the Control Panels folder, check in the **Memory** Control Panel to see what size the Disk Cache is set to. This is an area of RAM set aside for storing frequently-used data that would usually be read from the hard disk. You can increase the Disk Cache to improve your Mac's performance, but this memory is then not available for your applications. You can give the Disk Cache as much RAM as you like (but not more than your Mac has, obviously), but unless you're regularly working with large files, setting it above 1Mb won't make your Mac any faster. The default setting is 128K. It may have inadvertently been bumped-up and this is what's taking up the extra memory.

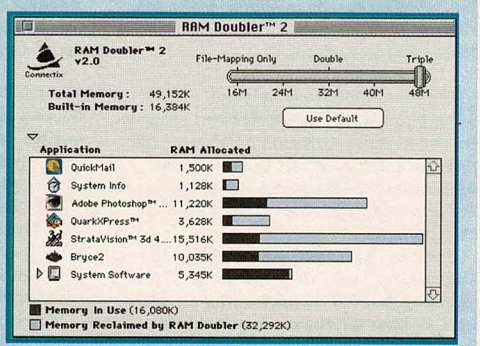
3. Another alternative is that you have *RAM Doubler* installed on your internal hard disk and not on the external. In PowerMac mode, this would mean that the System software on the disk with *RAM Doubler* would take up less memory. Using virtual memory with *RAM Doubler* on a PowerMac forces the Mac to load only the bits of the System (and applications) that it needs. Consequently, everything takes as much as ten percent less memory, but the penalty is that your Mac runs slower. If you upgrade to *RAM Doubler 2.0* (reviewed in MACFORMAT 43) you'll get a Control Panel that displays how much RAM the System and the Finder are using separately.

4. Lastly, it *could* be the drivers you're using on the disks. A driver enables your Mac communicate with external devices. At its simplest, it's just a list of a device's features and the commands needed to access them (a good example would be a printer driver). More complicated drivers are actually programs that control the device in question and pass data on to your Mac. Scanners, storage devices and CD-ROM drives are all peripherals that

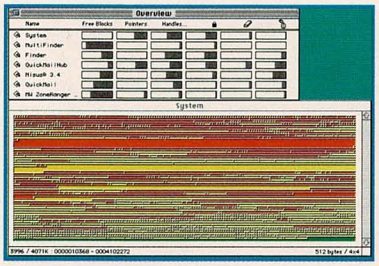
Memory malarkey

PowerMacs use more memory to run a program than 68K-based Macs, such as the Performa 630 or Mac II, because they use RISC (Reduced Instruction Set Computing) processors. A RISC processor has a much smaller "vocabuary" of instructions, which makes the chip less complex so it can run faster. The only problem is that RISC takes more instructions to complete a task, hence more memory is needed.

You can reduce the amount of memory PowerMac applications (and even the System software) take up by switching on Virtual Memory in the Memory Control Panel, or by installing *RAM Doubler* (£71 from Computers Unlimited on 0181 200 8282). Both force the PowerMac to use a technique known as "file mapping", making it load only the code it needs rather than the whole program. The result is that everything uses less memory, but there is a price to pay: file mapping does slow your PowerMac down a little.



***RAM Doubler 2* (reviewed in MACFORMAT 43) gives you a Control Panel that shows you how much memory is being used by your System, Finder and Disk Cache. It also shows you how much RAM *RAM Doubler* has saved. *RAM Doubler* slows down your Mac a little, but it's very handy.**



ZoneRanger* from MetroWerks can show you exactly how much memory individual parts of your System take up. It can even show you which *blocks* of memory are being used, but we don't talk about *them...

use these "active" drivers.

If you used the same version of *Apple Drive Setup* on both disks, then there shouldn't be any problem, as they will be using the same driver software. But if you used a commercial formatting utility, something that's usually bundled with new hard drives, then one or other of the drives could be operating with enhanced performance. To be honest, this is unlikely to account for a discrepancy of at least 500K in the amount of RAM the Systems are using. The driver software for your hard drive takes up only a few kilobytes.

It may be that the drive is using a custom-built data-caching algorithm – the software which works out what type of data is cached – which could take up more memory. If this is the case, you may want to use *Drive Setup* to install new drivers on both disks.

A good way to find out if this mixture of drivers is the problem might be to try running *ZoneRanger* on your Mac. This is a small utility which is used as a diagnostic and can show you a map of your Mac's RAM. It's a bit highbrow and techie, but it might give you a few clues as to what is going on. You can get hold of a copy on the Web from **http://www.metrowerks.com/tools/software/zoneranger.html**.

On a different matter, you say that you installed all the System 7.5.3 Control Panels and Extensions on your external drive. You will probably find that you will never use half of these. Some are for use on PowerBooks, for example, while others are for networking and other features you're not likely to use at home. These are merely taking up your precious disk space; you might as well bin them.

Playing dead

LC475 PRAM battery

Q *Some information which might save LC475 (and possibly Performa 475) owners a lot of time, effort and even money. If your computer begins its Startup, chimes, then stops; if you are left with a black screen and even booting from a floppy doesn't work; don't despair. It is possible that the motherboard battery inside your Mac has expired, as it did with mine. No warning, no explanation and no references to this little difficulty in technical manuals. Neither my Mac technical friends nor a local Apple supplier knew this would be a problem on my machine. So, a simple solution to what may at first appear to be a terminal problem. Only a few pounds to remedy and lot of heartache avoided.*

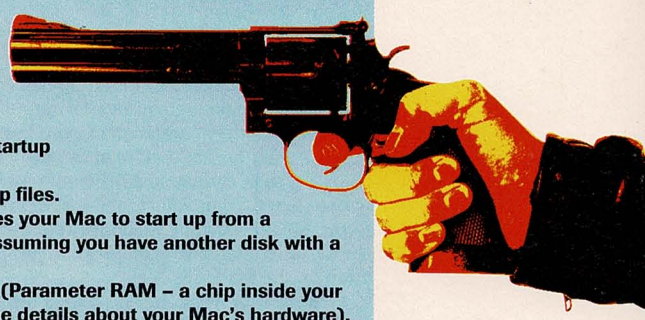
David Hillson
Balerno High School, Edinburgh

A A couple of other readers have reported a similar problem with their LC475s and Performa 475s. The PRAM (Parameter Random Access Memory) is a chip inside your Mac that holds a few System details in a small area of RAM. Settings found in the PRAM include the date and time, the SCSI ID of the Startup Disk, the location of the active System Folder, the settings of some Control Panels (most notably the **Monitors** Control Panel) and the time delay before the Mac accesses the hard disk in order for it to get up to speed and calibrate itself. It's this latter one that might be causing your black-out problem.

Because information stored in the PRAM is constantly changing (the time and date, for example), it's powered by a small battery that prevents the information being lost when you shut down your Mac. The battery will only last a couple of years; then it runs out of juice and needs to be replaced. The first symptom of this is that your Mac will revert to its factory settings. The date will often go first and revert to the 1st of January 1956. (Don't even begin to ask why!) Your monitor may also default to black-and-white. If the PRAM is not functioning because the battery is dead, then it's possible that your Mac is waiting an almost infinite length of time for the hard disk to get up to speed because it's getting corrupted information from the PRAM. One thing to try is "zapping" the PRAM by holding **[command] [option] P R** on Startup. This clears all the data out of the Parameter RAM. Your Mac will automatically restart once it's done this and you should release the keys after you hear the double Startup chime. This should restore the factory settings and your Mac should now start up with no problem. Beware, though: it will reset things like your network options to the factory settings, so you might have to spend a while working through your Control Panels, picking the options you want again.

If your PRAM battery is on the way out, take your Mac along to an Apple authorised repair centre and it will replace it for you. This should only cost around £20.

Trouble-Shooting keystrokes



Having a few keystrokes up your sleeve is incredibly handy when you run into trouble, and it makes you look dead flash in front of all your mates in the office. Ahem... yes.

Startup keystrokes – hold down during Startup
[shift] Turns Extensions off.
[command] [option] Rebuilds the Desktop files.
[command] [option] [shift] [delete] Forces your Mac to start up from a disk other than the internal hard drive (assuming you have another disk with a System Folder on it).
[command] [option] P R Zaps the PRAM (Parameter RAM – a chip inside your Mac which stores the date, time and some details about your Mac's hardware).
[command] [option] T V Switches your Mac's screen display from the monitor to a connected television set (Audio Visual Macs only).

Zipping the Internet

Reading compressed files

Q *I've downloaded a few .zip files from the Internet. Using* StuffIt Expander *or* ZipIt *to read them, I'm only able to obtain .sit or .txt files that are too big to be opened with*

7.5.5 out now

The US version of System 7.5.5 is now available and includes improved Virtual Memory and bug fixes for PowerMacs. We only put UK software updates on our Cover CD, but you can get this US version from Apple at **http://support.info.apple.com/ftp/7.5.5.html**

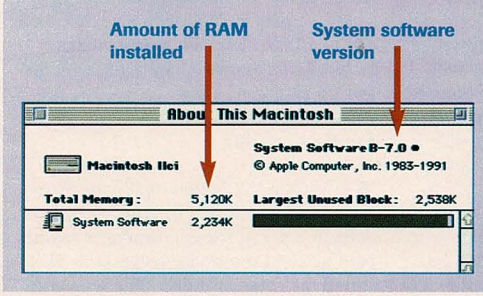
The do-it-yourself problem-solving guide...

One of the most common causes of problems on your Mac is Extensions or Control Panels clashing in your System Folder. It's easy to check if this is the case. Restart your Mac and hold down the [shift] key. Release the key when you get the message, "Welcome to Macintosh. Extensions off." If everything now works, then the problem is likely to be an Extensions conflict.

The only way to work out which item is the culprit is by trial and error. Remove a few Extensions or Control Panels, then restart your Mac, without holding down [shift]. Keep on doing this until the problem no longer occurs and you've found the offending software.

If this doesn't work, try rebuilding your Desktop. Start up your Mac holding down [command] and [option]. You'll get a message asking if you want to rebuild the Desktop. Click OK, wait for it to finish and see if this solves your problem.

If you're still stuck, use the form on page 69 to write to us. We'll need to know a few facts about your Mac, so when you're in the Finder, select About This Macintosh from the Apple Menu – the crucial things to note are shown at left.

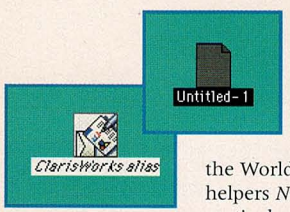


SimpleText. *Is there any other solution. For instance, can I read them automatically with* ClarisWorks *or* Microsoft Word *instead?*
Etienne Tordoir
Via e-mail

A Files downloaded from the Internet can be a pain. Sometimes it's not obvious what they contain, and even less obvious what format they're in. A **.zip** file is a type of compressed file commonly used by PC-compatibles, and is similar to the **.sit** files used by Aladdin's *StuffIt*, the de-facto "standard" compression program on the Mac.

Compression works by encoding a file so that the data physically takes up less space – extremely handy for the Internet, where large files can take a long time to download. *StuffIt Expander* is a free utility from Aladdin that will decompress most common compressed file types, but to decompress .zip files, you need *Expander Enhancer*, a *StuffIt* add-on that you drop into your System Folder. *Enhancer* is part of *DropStuff*, a $30 shareware suite. You'll find it on the MACFORMAT 41 Cover CD, or you can download it using FTP from **ftp://ftp.scruz.net/users/aladdin/public/dropstuff_w_ee_4_installer.hqx**. *StuffIt Expander* uses *Enhancer* to decode .zip files and many other file types you might come across, including UU-encoded and BinHexed files.

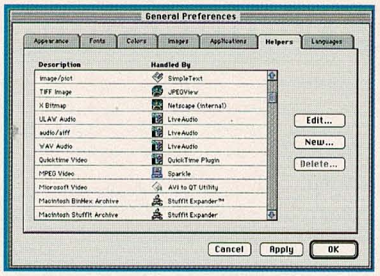
In theory, if the file was originally created on a Mac, it should retain its type and creator codes, which tell your Mac which application created the file and what type of data it contains, once it's decompressed. If it wasn't created on a Mac or you don't have the creator application, you should be able to open it using *SimpleText* or *ClarisWorks* if it's a text file, or *GraphicConverter* (on the Cover CD in the Resources folder) if it's a picture or graphics file. The **Easy Open** Extension enables you to specify which application you want to use to open a given file type, but in practice, instead of actually succeeding in opening a mystery file, it often gives you a long list of options to choose from.



If you don't have the application that created a particular document and want to open it using something else, the quickest way is to keep an alias of the application you want to use on your Desktop and drag files onto it.

Netscape Navigator uses "helper" applications to decode and open almost any type of file you might download from the World Wide Web. You can choose the helpers *Netscape* should launch to open particular file types via its **General Preferences** box. Once the file has been decoded, *Netscape* will launch the appropriate application to open the document. If the file is one that *Netscape* doesn't recognise, or was created on another type of computer, then *Netscape* won't do anything after *StuffIt* has decoded it.

If you double-click on an unknown document in the Finder, your Mac will sometimes give you the option to open it in *SimpleText*. If the file is larger than 32K, *SimpleText* won't be able to handle it – you'll need to use an alternative application such as *ClarisWorks*. The quickest way to do this is simply to create an alias of *ClarisWorks* on your Desktop (highlight your ClarisWorks icon in the Finder and press **[command] M**) and drag your



***Netscape* can automatically launch an application to open documents you've downloaded. You can choose which application via *Netscape's* preferences.**

files onto the alias to open them. If you regularly download the same type of files, it makes sense to set the file type and creator in *Netscape's* **General Preferences** so that *ClarisWorks* will automatically launch. If the file originated on a PC-compatible, you could use the **PC Exchange** Control Panel that comes with System 7.5 to assign a specific application to open files with a particular suffix – .txt means a text file, for example.

For files that can't be opened in *ClarisWorks*, such as MPEG and QuickTime movies, *Netscape* comes with a set of utility programs to open most common Internet files, including *Sparkle* – a software MPEG player. To play QuickTime movies, you can download the QuickTime plug-in for *Netscape* from Apple's web site at **http://qtvr.quicktime.apple.com/sw/sw.html**. This enables you to view QuickTime movies on-line before you've finished downloading the whole clip, although you'll need to be using *Netscape 2.0* or later to use it. Better still, the new *Netscape 3.0* comes with the QuickTime plug-in. You can download the 90-day trial version of *Netscape 3.0* from Netscape's Web site at **http://home.netscape.com/comprod/mirror/index.html**.

Changing times

System 7.5.3

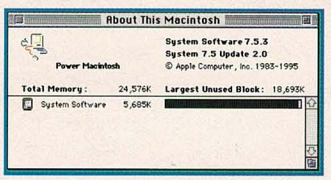
Q *I recently installed the System 7.5 upgrade that has been sitting on my shelf for several months. My reluctance to use it stemmed from worries about it using up too much memory, but in the end it seemed better to join the crowd than be left behind. The recent System 7.5.3 upgrade on your Cover CD* (MACFORMAT *39) tipped the balance.*

My question is, do I need a new Disk Tools disk and Disk First Aid, *or will the one included with System 7.5 work fine with System 7.5.3?*
Albert Barber
London, via fax

A System 7.5.3 does deal with Mac files in a slightly different way from System 7.5, but these differences mainly take place in the invisible Desktop files stored on your hard disk. The way your Mac catalogues, reads, writes and retrieves files hasn't changed. You can use the version of *Disk First Aid* that came with your System 7.5 upgrade quite safely, but ideally you should always use the latest version.

The System 7.5.3 Update on MACFORMAT 39's Cover CD includes the current versions of both *Apple HD Setup* and *Disk First Aid*, as supplied on the Disk Tools Disk. Your original System 7.5 Disk Tools floppy will still boot up your Mac should you run into any major problems. The only exceptions to this rule are the PCI PowerMacs, which can only be booted from a System 7.5.2 disk or later. This disk is supplied with all of these types of Mac.

Regarding System 7.5.3 and its memory requirements: yes, it does take up more RAM than previous versions. On a PCI PowerMac, System 7.5.3 typically takes up around 4.5Mb of RAM – 6Mb if you're using Open Transport. If you own a PowerMac, upgrading to 7.5.3 fixes a lot of bugs and prevents some of the unexplained crashes that occurred in earlier models. If you own a 68K-based Mac, such as an LCII, Quadra or Performa 630, for example, you should weigh up the increased RAM requirements against the enhanced features, then decide if it's worth upgrading.



Our PowerMac 7200 runs System 7.5.3. Even with Virtual Memory switched on (which reduces the memory take-up of the native applications and the System), the System still takes up over 5Mb of RAM!

The end is nigh

Into the millennium

Q *Can you tell me what is going to happen to the date on my Mac when we change to the new millennium? It has been suggested that the changeover will cost firms a lot of money. If so, can you say how much?*
Barry Oliff
Via fax

A It has been suggested that at the turn of the millennium (or rather the year 2000) all hell will break out on your computer because of bad karma or something. The theory is that when the date on your computer flips over to the 1st of January 2000, your Mac and a lot of software won't be able to handle it.

First, as far as your Mac is concerned, 2000 is just another number. There is no conspiracy, no built-in time-bomb, no System software booby-trap on your Mac. It will not stop functioning just because it's New Year (though many humans will, especially just after midnight).

You may need to start worrying about dates in 23 years' time, though. You can set the date in your Mac's **Date and Time** Control Panel to any day between the 1st of January, 1920 (not that there were any Macs around then!) and the 31st of December, 2019. So if you're still using your current Mac and System by 2020, you can expect to have trouble. But by 2020, of course, something with the power of your Mac will fit in a wristwatch and we'll all be calling megabeasts like the 9500/200 "quaint". (The way

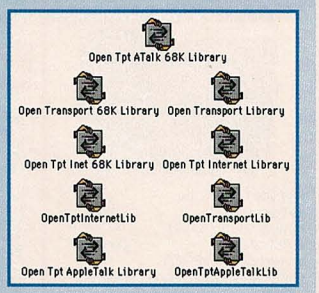
Scuzzy

SCSI (Small Computer System Interface) is the system that your Mac uses to connect external devices. A SCSI chain supports up to eight devices – your Mac and its hard disk, as well as six identities for other devices, such as a CD-ROM drive.

What is Open Transport?

Open Transport is Apple's new networking and communications software, and it's designed to take the pain out of connecting your Mac to multiple-platform networks – networks to which different types of computers such as Macs, PC compatibles and Unix workstations are connected.

Open Transport provides your Mac with a set of protocols that make connecting to other computers easier. It also provides easier Internet connection and support for a wide range of related protocols. There is also a set of tools and a standard interface included for developers to use within their applications. In a nutshell, Open Transport makes it easier for your Mac to communicate with other computers, wherever in the world they may be.



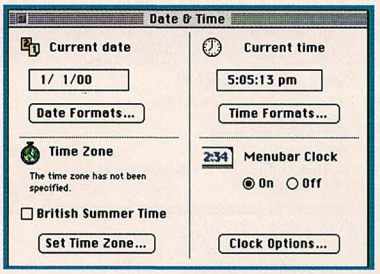
Open Transport is a collection of Extensions and Libraries that are designed to make it easier for your Mac to communicate with other computers.

things are going, mind you, we might be saying that by December this year.)

As for the year 2000 affecting software produced by companies other than Apple, there may be a slight problem with some of the older stuff, but only in a very few cases. This is simply because of a shortcut that these programs use when it comes to the date. Instead of using the full date for the year (1996 for example) some programs simply abbreviate it to "96", just as you would. At the start of the next millennium, this means that the year 2000 will be be abbreviated to "00", something that the software may interpret as 1900.

So why are people making a fuss? While you as a Mac owner needn't worry about the millennium, some large, complex databases that aren't equipped to deal with the eventuality, and it could cause problems in retrieving information that's already been keyed in.

The kind of databases we're talking about are custom-written programs, used by large insurance companies, government departments, and banks (nothing too serious, then). These are not run on an LCII in a broom cupboard somewhere, but on Unix-based workstations and vast computer networks. The problem is that each of these programs will have to be updated, which could take considerable time and expense. Estimates of cost start at hundreds of thousands of pounds and work their way up. But even if you do use your Mac for large databases within a business setting, all of the common packages are regularly updated and the switch to the new millennium will cause no problem.



Worried the year 2000 will make your Mac throw a fit? Try it out now in the Date and Time Control Panel, and be reassured.

If you are still worried that your Mac or its software will commit hara kiri on New Year's Eve, try a simple test. Go into the **Date and Time** Control Panel and change the date and time to 11.55pm, 31 December 1999. Restart your Mac and wait till it hits midnight. Nothing's happened? Try restarting again after setting the year to 2000, so that your Mac *starts up* thinking it's the new millennium. Nothing? Try running all your applications and opening your most treasured documents. Still nothing? Stop being so paranoid then! **MF**

Tricky!

Do you know of any tips or hidden Mac features? How about tricks you've discovered while using you favourite program? We want them! Send them to MacAnswers, MACFORMAT, 30 Monmouth Street, Bath, BA1 2BW.

Ask the experts...

If you send in a question for the MACFORMAT experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to:
MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW; or fax it to us on 01225 446019.

Name .....

Address .....

.....

.....

.....

.....

.....

Your Mac
(For example, Performa 200, IIfx, PowerBook 145):

.....

System version
(see **About This Macintosh** screenshot on page 67): .....

Amount of RAM
(see **About This Macintosh** screenshot on page 67): .....

Are you using Virtual Memory? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Do you have 32-bit addressing turned on? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Details of any relevant hardware which could help us to answer your question:

.....

.....

Now, use this space to describe your problem or question. Please include as much relevant information as possible, and continue on a separate sheet if necessary.

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- 200 MHz or 2x180MHz Motorola PowerPC 604e Processor (on upgradable daugtherboard)
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- 32Mb RAM • 2Mb ATI Video Card • 2Gb Hard Drive
- 8x Speed CD ROM Drive • 3 PCI expansion slots

9500/200 32/2000 8xCD only £3159 — 9500/180 32/2000 8xCD only £3695

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- 200 MHz Motorola PowerPC 604e Processor (on upgradable daugtherboard)
- 512k Level 2 cache • 2Mb ATI Video Card • 8x Speed CD ROM Drive • 3 PCI expansion slots
- No RAM & No Hard Drive or 32Mb RAM & 2Gb Hard Drive

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- 100 MHz PowerPC 603e Processor • 12Mb RAM
- 4x Speed CD ROM Drive • Internal 14k4 modem
- 256k Level 2 cache • 800Mb Hard Drive • Integral 14" monitor

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- 8Mb RAM • 1.2Gb Hard Drive • CD ROM Drive
- TV • Modem • MPEG • Integral 15" monitor
- + StyleWriter 1500

Performa 6320/120

- 120 MHz PowerPC 603e Processor • 256k Level 2 cache
- 12Mb RAM
- 2Gb Hard Drive
- 8x Speed CD ROM Drive

Performa 6320/120 12/2000 only £948

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- 180 MHz or 200MHz PowerPC 603e Processor
- Optional 256k Level 2 cache (standard on 6400/200)
- 16Mb RAM • 1.6Gb or 2.4Gb Hard Drive • 2 PCI expansion slots
- 8x Speed CD ROM Drive • Internal 28k8 voice/fax/modem

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Performa 6400/180 16/1600 with 14" or 15" monitor only £1479 — Performa 6400/200 16/2400 with 14" or 15" monitor only £1745

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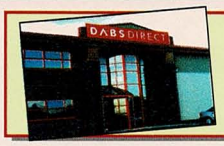

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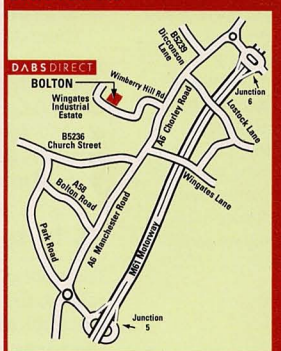

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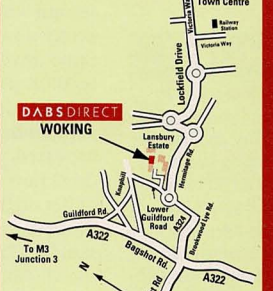

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A need for speed...

From the humble single-speed to the super-fast 12-speed, CD technology is moving fast. Feeling left-behind? Lindsay Bruce explains all you need to know before you buy a CD-ROM drive.

As little as five years ago, CD-ROM drives were an expensive and sought-after computer peripheral which few people could either afford or justify having in their home. CD-ROMs offered the perfect solution for both archiving and distributing information, because of their large capacity and low production costs, but even so, it took a long time for them to become popular, thanks mainly to the cost of the drives and the limited number of CD-based titles available to buy.

These days, it's a different story. You can't buy a Mac *without* a CD-ROM drive, and nearly all computer games come on CD-ROM, as do an increasing proportion of applications and even your System software, not to mention the many hundreds of multimedia titles out there.

Up to speed

Like everything else remotely computer related, the CD-ROM drive has evolved and improved since those early days. It still works along the same principles, but the main difference is in the speed. The first CD-ROM drives were based on mechanisms almost identical to one you'd find inside a hi-fi system. These could transfer up to 150K of data per second – fine for audio purposes, but pretty slow for computer storage. Then came drives that could transfer data at up to 300K per second. These were aptly dubbed "double-speed", and this convention has stuck as faster drives have appeared, with the speed of a CD-ROM drive now being expressed as a multiple of the original 150K per second. At present, quad-speed ("4x") drives are the standard fare for home use, with eight-speed ("8x") drives fast becoming the new standard in the marketplace. Check out average transfer speeds in kilobytes per second, using the table below.

In fact, there's not much to differentiate one CD-ROM drive from another apart from speed. There's only a relative handful of companies actually making the mechanisms, and these are mounted in cases by a plethora of suppliers, who also bundle the software utilities, drivers, etc. This means you might find the same Sony mechanism inside an Apple 300e or a drive from Electronique d2. With differences in build quality or reliability not an issue, speed is the main selling point.

Higher speeds are achieved simply by spinning the disc faster, but this requires higher precision manufacturing, so faster drives are inevitably more expensive. In theory, a quad-speed drive should be able to transfer four times as much data in one second as a single-speed drive.

Top gear

This is all in theory though. Indeed, in our tests, one drive performed at a speed above its expected transfer rate, while another was slightly slower than we thought it would be. The actual speed at which data can be pulled off a CD-ROM and transferred to your Mac depends on many factors, including how fast your Mac is, the size of its disk cache and the driver software you use. If you buy a CD-ROM drive you usually get driver software supplied with it, and in most cases this software has many more caching and driver options – and faster ones – than the Apple *CD-ROM Driver* Extension that comes as part of your System software.

The new eight and ten-speed drives even eliminate the long wait you currently experience for the disc to appear on the Desktop or a folder to open after you double-click on it – something caused while your Mac painfully and slowly extracts the Directory from the CD. On eight and ten-speed drives, this wait has all but vanished because the information is transferred so much faster.

But let's not get too excited. The vast majority of CDs are games and multimedia titles, and most of these are designed to run on double-speed or, at most, quad-speed drives. Having a CD-ROM drive faster than this will make copying from CDs faster, but it won't make running games or multimedia any faster. It'll be years before an eight-speed drive becomes a fairly standard requirement, by which time the new DVD format will have arrived anyway (see "A glimpse of the future..." on page 74).

So, why bother with an eight-speed CD drive? Well, it does make copying things from CD much faster. If you have a lot of files on CD that you regularly use – for example, archived graphics, clip art libraries, clip photos or even MacFormat cover CDs – then a faster drive will save you making a lot of cups of tea.

Twelve-speed CD-ROM drives are not widely available yet, but you should be

Confused?

SCSI (Small Computer Systems Interface) is the connection protocol your Mac uses to communicate with devices such as CD drives, storage devices, and scanners. For more information, see MacAnswers, starting on page 66.

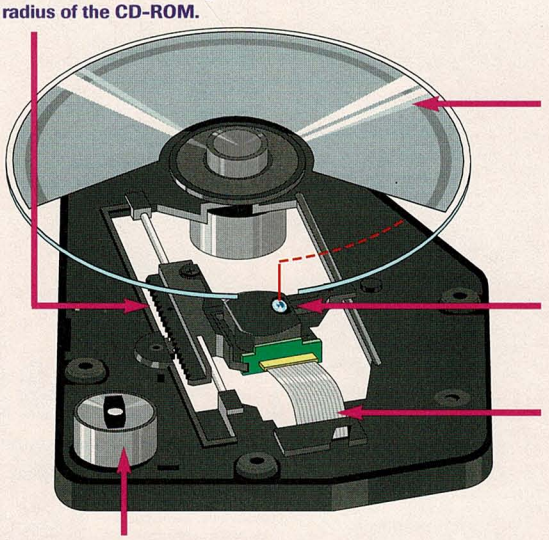
Ready cache

A disk cache is an area of your Mac's memory dedicated to storing frequently used data from a disc. If your Mac needs the same data again, it can get it from the much faster disk cache rather than having to re-read it from the disc.

How fast?

Drive	Transfer rate
Single-speed	150K/sec
Double-speed	300K/sec
Quad-speed	600K/sec
Six-speed	900K/sec
Eight-speed	1.2Mb/sec
Ten-speed	1.5Mb/sec
Twelve-speed	1.8Mb/sec

How a CD drive works



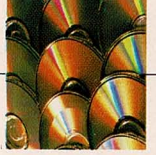
Tracking carriage. This slider moves the read head accurately across the radius of the CD-ROM.

CD-ROM. The data is imprinted on a metal foil sandwiched between two clear plastic layers. The whole disc is spun at high speed.

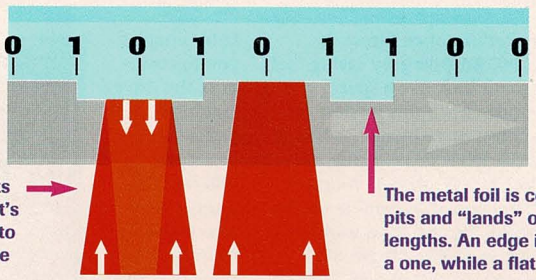
Read head. This pulses a laser beam off the surface of the CD as it spins. When the pulsing beam hits the edge of a pit, the drive interprets this as a "one".

Data connection. This connects the read head through to the driver circuitry, where the data is interpreted and passed on to your Mac.

Servo motor. Used to move the carriage and read head across the disc.



Getting in closer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As the laser hits the metal foil, it's bounced back to a receiver in the read head.
The metal foil is covered in pits and "lands" of different lengths. An edge indicates a one, while a flat is a zero.

able to buy plenty early in 1997. These are fast enough to rival the average hard disk and you will be able to play full-screen video from them. It's inevitable that these will eventually be bundled with Macs, but it's going to be six months to a year before that happens.

So how do they work?

A compact disc is like no other form of computer storage because it doesn't rely on magnetism. All other storage devices, including hard drives, floppy disks, magneto-optical drives and SyQuest cartridges, rely on "reading" the magnetic polarity of tiny particles on the surface of a platter. A CD-ROM drive however uses light to read the disc.

It works like this: a CD is covered in tiny "pits" or hollows, arranged in tracks – concentric circles – that spread from the centre to the outside of the disc. (To give you an idea of the scale of this, the average length of a pit is one micron – one millionth of a metre.) These pits are imprinted into a very thin piece of metal foil sandwiched between two layers of clear, protective plastic. A "read head" (a pulsing laser with a receiver to record the reflected pulses) is mounted on a slider, which moves with great precision from track to track across the radius (from the centre to the outside) of the disc. When the laser hits a pit, the pulse reflected to the receiver is different from the pulse reflected by the non-pitted surface.

With it so far? Now, this is where it gets complicated. Computer data is stored in the form of binary code – sequences of ones and zeroes. For the sake of simplicity, most people refer to a pit as representing a zero and a "land" (the non-pitted, raised area of the disc) as representing a one, but this is not strictly true. What the laser detects is actually the *change* in the surface of the disc between one pulse and the next. When it detects a change, it registers a "one". (So yes, every time the laser detects a pit it registers a one, but it is also true to say that it *also* registers a one when it reaches the end of the pit and hits a land.) So where do zeroes come into it? When the laser detects *no change* from one pulse to the next, it registers a zero.

There's an obvious problem with this approach. Common sense tells you that the circumference of the disc at the outside edge is far greater than it is at the inside edge; therefore, you can fit more data onto a track on the outside edge than you can on one closer to the centre of the disc. The outside edge of the disc also passes under the read head much faster than the centre. Surely this means that if the laser pulses at a constant rate it will have a much harder time detecting pits as they whizz by near the outside edge? True. The solution to this is to slow the disc down, the closer the read head gets to the outside track, and speed it up the closer it gets to the centre. This means that the pits always pass under the read head at the same speed – no matter where on the radius of the disc they are. This is called constant linear velocity (in case you wondered).

Capacity and formats

At present, the average compact disc stores around 650Mb of data. We say average, because there are numerous different ways in which data can be stored on a CD. By far the most common format is the humble audio CD that you can buy in any high-street music shop. These can store up to 78 minutes of digitised stereo sound and can be played on any CD-ROM drive. This is called the Red Book standard, and was developed about 20 years ago for storing digitised audio data. The second most common format is the ISO9660 standard for computer data. This is used widely by PC-compatible computers. Any computer with a CD-ROM drive is capable of reading an ISO9660 disc, but this standard isn't used extensively on the Mac because it doesn't allow for the long file names that the Mac can use. Consequently, Mac CDs are similar to ISO9660 discs, but use a third standard, HFS (Hierarchical File System). This is the same system your Mac uses on all volumes or disks.

There are other formats available too, including High Sierra, a forerunner of ISO9660; Photo-CD, developed by Kodak for storing digital images; and Philips's CD-I, used in entertainment systems.

Be a smart buyer

1 When looking for a CD drive, ask yourself what you're going to use it for. If it's for games and multimedia, then a quad-speed drive will be a good – and, more importantly, cheap – buy. If you often have to copy lots of files from CD though, a faster drive might serve you better.

2 When you buy a CD drive, check to see what driver software you get with it – if any. FWB's *CD-ROM Toolkit* and CharisMac's *CD-ROM Utility* are the pick of the bunch, and offer a wide range of both caching and optimising features.

3 External CD drives tend to cost a little more than internal drives. However, the external variety is much easier to connect to your Mac and most – if not all – come with both driver software and connection cables. This is frequently not the case with internal drives.

4 If your Mac is reaching bursting point with all the files you've got crammed on to it, why not go for a CD writer instead of a CD drive? You can buy a double-speed CD writer for around £400, and the blank CDs are about £12 a throw, giving you 650Mb of permanent storage each time. That's about 1.8p per megabyte. See page 75.

5 If you're on a tight budget and can't afford to splash out money on a brand new CD drive, then have a flick through MacFormat's free reader ads, starting on page 158. You could pick up a second hand double-speed CD drive for around £50.

Wired up

Ensure the drive you buy comes with a SCSI cable to connect it to your Mac. If you already have an external drive, you should get a 50-pin to 50-pin SCSI cable instead of a 25-pin to 50-pin. This will enable you to daisy-chain the two drives together.

Internal or external?

Most drives – whether floppy, CD or hard disk – come as either internal or external. Internal drives, obviously, fit in your Mac, while external drives come with their own case and power supply and connect to your Mac via the SCSI port.

CD-ROM drives are no exception to these rules, and you can buy either. However, to fit an internal drive, you need a spare 5.25-inch drive bay. Most Macs have them, but many will already have CD-ROM drives fitted. If you don't have an empty 5.25-inch drive bay, then you'll have to opt for an external drive.

To be honest, it's questionable whether buying an internal drive is an advantage. After all, an external drive can easily be disconnected and attached to another Mac, and you can take it with you if you upgrade. An internal drive, though, can be a pain. To fit it you'll need the correct bezel for the front of your Mac, something you'll need to buy from an Apple dealer. Then you need to go to the trouble of fitting the damn thing. Buying an external drive avoids all this fuss and you'll only pay about £20 more for it. Plus, most external drives come supplied with driver software, which is not always true with internal drives.

If, however, you have a PowerMac 8100, 8500 or 9500, there is a good reason for opting for an internal drive after all. These Macs have a dual SCSI set-up and the internal SCSI chain can transfer data at around 10Mb per second, as opposed to the external chain's 5Mb per second. Worth considering!

Internal drives come without case or power supply. This is the Apple 300e.

What do you get in an eight-speed drive?

WIN one of these drives – see page 162

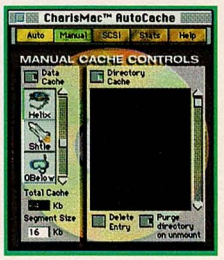
Eight-speed CD-ROM is now where it's at, so what sort of bundle can you get? To give you a point of comparison, we tested a new eight-speed drive from Performance Direct, which has been quick on the uptake and introduced this drive at a competitive price.

The mechanism inside the drive is produced by NEC and then the whole unit is assembled by Performance Direct. It comes in a plain, no-frills grey casing that might not make it look like a speed demon, but underneath this modest exterior is a very fast drive indeed. It has all the essential CD-ROM drive features, including a headphone socket, volume control and eject button accessible on the front of the drive. The business end is round the back, with two 50-pin SCSI connectors, power on/off switch, SCSI ID selector and stereo audio-out ports.

These are for connecting the drive up to stereo equipment, giving you the option to use it as an audio CD player if you so wish.

The drive comes with a one year warranty, connection cables and CharisMac Engineering's *CD-ROM Utility* driver software. The software consists of an Extension (the actual driver), an *Audio CD Player* utility and a Control Panel. The latter enables you to customise the driver, making it compatible with a variety of different CD standards. A directory cache function is also provided. This saves details about the CD's contents to a small file on your hard disk, rapidly speeding up the process of mounting the CD on your Desktop.

Based on an NEC mechanism, the Performance Direct eight-speed drive is a good benchmark against which you can assess any 8x drives you see.



The Performance Direct drive comes with CharisMac's *CD-ROM Utility*, which has a range of preset options suitable for popular games and multimedia CDs.

■ The Performance Direct eight-speed CD drive costs £258 – for more details contact Performance Direct on 01784 477477. (And turn to page 162 for the chance to win one of three of these drives, courtesy of Performance Direct!)

What can you expect from a ten-speed drive?

Ten-speed drives aren't quite here yet – this drive from Electronique d2 isn't available in all the shops yet, but if you've got to have the latest thing, this is the future. It's based on a brand new Pioneer ten-speed mechanism that can – in theory – shift 1.5Mb of data per second, something it managed without any apparent difficulty in our tests.

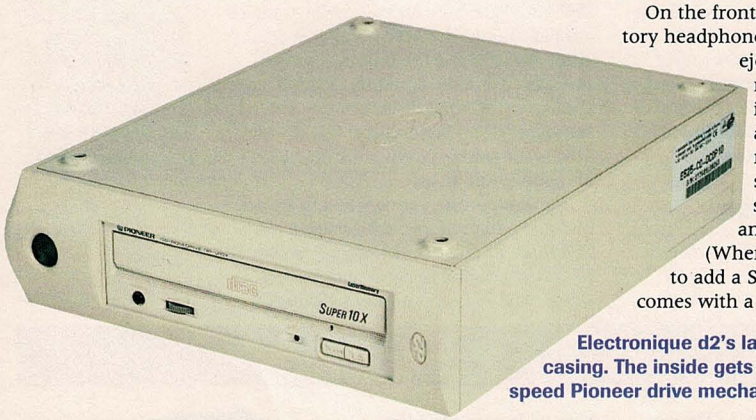
The drive is housed in d2's customary highly-styled casing – a work of art in itself. It's contoured at the front and down one side, and has the d2 logo emblazoned on the top. In a world full of dull grey computer peripherals, this one is a breath of fresh air.

On the front of the unit is the obligatory headphone socket, volume control, eject button and d2's trademark, the big green power indicator. Around the back are two 50-pin SCSI connectors, power on/off switch, SCSI ID selector, stereo audio output and an active terminator switch. (When it's on, you don't need to add a SCSI terminator.) The drive comes with a one year warranty, connection cables and a driver from Software Architects (an Extension and the *CD Remote* utility to play audio CDs).

We road-tested the drive on our office PowerMac, and it is *very* fast. Folders shot open and files copied with the sort of speed usually associated with a smaller-capacity hard drive.

The drive we looked at was fully finished, and should be on sale in most outlets any day now.

■ The Electronique d2 ten-speed CD drive costs £410. For more details contact Electronique d2 on 0171 833 0009.



Electronique d2's latest drive boasts a stylish casing. The inside gets better, sporting a ten-speed Pioneer drive mechanism.

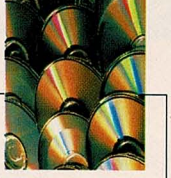
Electronique d2's ten-speed CD-ROM drive comes with the *CD Remote* utility, similar to Apple's *Audio CD Player*.

How fast should you go?

Eight and ten-speed CD drives are all very well, but are they really necessary? Well, the answer is not really. If you don't already have a CD drive, you can often pick up an old double-speed drive second-hand for less than £50 – keep an eye on the MACFORMAT free reader ads section at the back of the magazine, starting on page 158 this issue.

If buying second-hand doesn't appeal, and you want something with a guarantee, then you could try your local Apple dealer or some of the mail-order companies that advertise in MACFORMAT. Many will have stopped buying double or quad-speed CD drive stock, but they could quite possibly have a few left that they will part with at reasonable prices. As a guide, you shouldn't pay more than £150 for a quad-speed drive, or more than £100 for a double-speed drive.

Single-speed CD-ROM drives simply aren't worth buying – they are slow, antiquated, and almost no multimedia title will run at this speed. Unless you're getting it for around £20 and don't intend using it for anything more than playing audio CDs through your Mac speakers, avoid single-speed drives like the plague. Most games and multimedia these days require that you use at least a double-speed CD drive, with quad-speed being increasingly recommended.



Do it yourself

If you deal with a lot of files and need to archive them quickly and permanently, or perhaps transport them securely, CD writers are fabulous.

We archive each issue of MACFORMAT onto CD-R (CD-recordable). We pack one whole issue – *QuarkXPress* documents, scans, screenshots, *FreeHand* EPSs, the lot – onto two or three CDs, and we do that every four weeks. CD-R is ideal for this because it is light and compact, easy to store (or send through the mail to print bureaus or even overseas licensees to reprint), and permanent – once written, the data on the CD cannot be erased or overwritten. Whatever you're doing, if you produce lots of it, a CD writer could be a sound investment.

On the other hand, CD may not be ideal if you need to access data quickly or frequently – the data transfer rates you can expect from current CD drives don't compare with hard drives, for instance, although with faster and faster CD drives this will change in time. And, of course, CDs are not suitable if you need to re-save data after working on it, because you can't overwrite what's on the CD. Finally, the present capacity of CD-ROM discs is a limitation. If you work with animation or video on your Mac, for instance, 650Mb of storage will vanish in just a couple of minutes of raw, uncompressed, full-screen footage.

If you're just running out of disk space, then there are cheaper storage solutions out there. (Check MACFORMAT 43 for a round-up of some of the most popular options. If you missed this issue, turn to page 128.) And, at the other end of the scale, there are technologies with substantially greater storage capacity, like hard disk arrays.

Mass manufacturing of CD-ROMs is a highly complicated and involved business, but archiving to single CDs (or more properly, recordable compact discs) is a different matter entirely. Until a few years ago, the necessary CD-R drives were – unsurprisingly – very expensive. These days, they're much cheaper. You can pick up a double-speed CD writer for around £400, and a CD-R disc, or gold master, should cost you up to £12 or so.

CD-R discs can only be "cut" (or "burnt") once. It's possible to write data to different areas of the disc at different times (these are called multi-session discs), but once the data is on the CD it can't be deleted, changed, over-written or moved. Like all compact discs, CD-Rs need to be treated with respect. Extremes of temperature or prolonged direct sunlight can make the dye deteriorate, rendering the disc useless. If treated well though, a CD-R disc has a reliable life expectancy of around five years – about the same as your Mac's hard disk, and three years longer than most magnetic-based removable media.

It's also worth remembering that cutting CD-R discs is a trial in patience. Unavoidable errors in the mastering process are quite common, and these can make your discs useless. This means CD-R can be a time-consuming, hair-tearing and expensive business.

Who made it?

Original Equipment Manufacturers (OEMs) like Pioneer actually make the guts of a drive. These are then sold on to companies such as d2, who put them into cases and add a power supply and then often sell them with software and cables under their own name.

A glimpse of the future...

By the middle of next year, you'll be able to buy a new type of CD-ROM that can store even more data. This is known as DVD – Digital Video Disc (sometimes referred to as High Density CD-ROM). The computer equivalent will be called DVD-ROM, and will be capable of storing 4.3Gb of data on a single-sided disc and 8.6Gb on a double-sided disc. A dual-layer technology has also been developed, enabling manufacturers to bump the volume of the discs up to 17Gb.

These increases in capacity have been made possible by advances in laser technology that have produced a much tighter laser beam. Consequently, the data tracks on the CD can be packed much closer together.

DVD-ROM drives, when they finally appear, will be able to read conventional CD-ROMs, but you won't be able to read DVD discs on current CD-ROM drives. It will be a long time before DVD discs become as common as CDs are today – at least five years – so buying a DVD drive next year is probably overkill. They are likely to cost in excess of £400 and it will be some while before the DVD-ROMs are manufactured on a grand scale. If you're going to buy a drive, you'd be better off buying a quad or eight-speed CD-ROM drive now and buying a DVD drive in a few years, once they become cheaper.

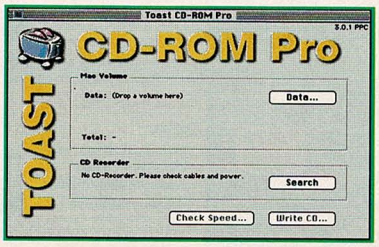
Spot on

If you don't get driver software with your drive, you can buy a CD utility program such as MacPeek's *SpotCD* that will do the job for you. *SpotCD* costs £11.80 from Performance Direct. For more details, contact them on 01784 477477.

How about a CD writer?

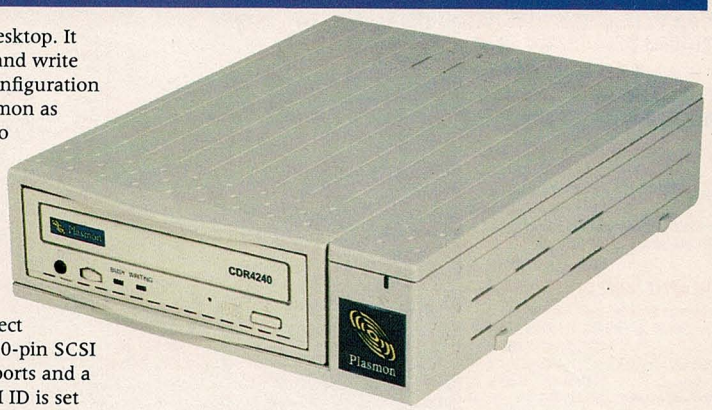
Snowed under with information and think it's about time you started cutting your own CDs? A few years ago you would have needed a truckload of money and an area the size of a small filing cabinet next to your Mac before you could "burn" your own CD-ROMs. These days, though, CD writers cost little more than most removable drives, and take up no more space than an ordinary CD drive.

Plasmon's CDR4240E is one of these new breed of drives, designed for the small office and even home desktop. It will read CDs at quad-speed, and write them at double-speed. This configuration is becoming increasingly common as the mechanism gets cheaper to produce. The drive is similar in style to Performance Direct's eight-speed CD-ROM drive, with a fairly nondescript grey casing. On the front it has a headphone port, volume control, read and write indicators and an eject button. On the back are two 50-pin SCSI connectors, stereo audio-out ports and a power on/off switch. The SCSI ID is set via a series of DIP switches, also on the back, and the documentation explains how to set these up. Also supplied are Astarte's *Toast CD-ROM Pro 3.0*, the "standard" package for cutting CD-ROMs, and connection cables.



Plasmon's CDR4240 drive comes with Astarte's *Toast CD-ROM Pro 3.0.1*, enabling you to burn your own CD-ROMs and audio CDs.

Toast comes with its own software drivers for accessing the drive in both CD player and CD writer mode, and you can use it to cut almost any type of CD, including Red Book, ISO9660 and mixed mode (CDs that contain two or more different types of information) and, of course, Macintosh HFS.



A CD-writer like this one from Plasmon can pack 650Mb of data onto a single CD that costs you only £12. Mind you, the drive will set you back about £500.

■ The Plasmon CDR4240E is £505. For more details contact Performance Direct on 01784 477477.

■ For details of other CD writers, see our group test in MACFORMAT 36.

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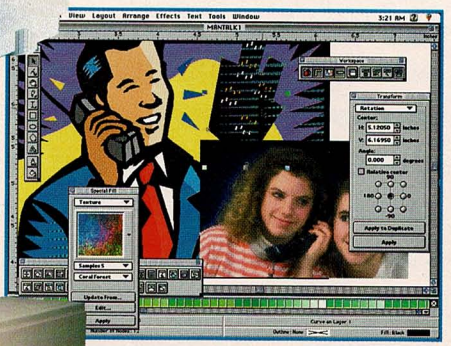
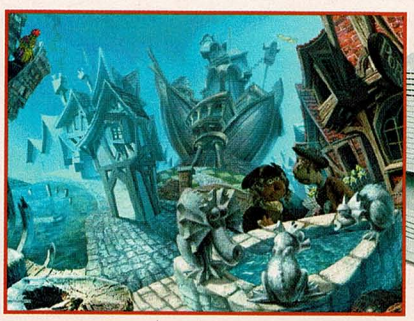
The Umax Vista S-12 scanner claims to take scanning to a entirely new level. See our verdict on page 80.

CorelDraw 6 finally makes it to the Mac! Was it worth the wait? Find out on page 88.



Just another high-spec Mac clone? The Umax Pulsar 604e/200 is tested on page 78.



Ahoy there! Join in the fun as the Muppets take to the seas in search of treasure. Full review of this family adventure on page 122.

Our play-testers put Tomy's new ComfyKeyboard through its paces. See page 106.

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Price: RRP, inc VAT. **Contact:** The number to call for more information. **Web site:** Usually the maker's site, for more details. **RAM:** The minimum memory your Mac will need to have. Free RAM is the requirement excluding the System. **Processor:** Check the table on page 134 for your Mac.

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Umax Pulsar 604e/200

Hot on the heels of Apple's latest PowerMac releases, Umax has released a new 200MHz clone. It's speedy, but is it value for money? Lindsay Bruce takes a look at how it measures up.

Umax, the Taiwanese scanner giant, joined the Mac clone fray last year after buying Radius' Mac OS licence. Its first clone, the Pulsar 1500 (reviewed in MACFORMAT 42), arrived just four months ago. Since then, the Mac world is a different place, with faster machines being announced almost daily. In response, Umax has come up with the Pulsar 604e/200 – the Pulsar Pro.

Superficially, it's similar to Apple's 9500/200. They both use 200MHz 604e daughterboard-mounted processors, and have six PCI (Peripheral Component Interconnect) slots. They also come in tower cases and use the same motherboard design. But the Pulsar has a few extra tricks up its sleeve. It comes with 16Mb of RAM, a 2Gb hard drive, an eight-speed CD-ROM drive *and* a 128-bit graphics card. An extended keyboard and mouse are also supplied, but no monitor.

On the outside, the Pulsar has a neatly designed cream casing that it shares with its predecessor, the 1500. The case has had minor alterations – curves have been sharpened up and it now has a rather nice sandstone-type finish to its surface. On the front you'll find the power on/off button, reset and interrupt buttons and separate headphone and external speaker ports.

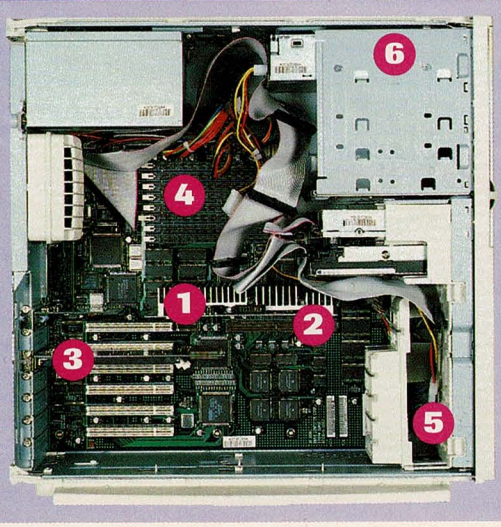
The top half of the case is a hinged door. When pulled back, this reveals not only the eight-speed CD-ROM drive but also the floppy disk drive and the spare drive bays (one 5.25-inch and two 3.5-inch). A third 3.5-inch bay is hidden inside the lower half of the casing, for fitting a second hard drive.

Getting inside is really simple. A small screw and two catches on the back enable you to remove one side of the Pulsar's casing. With the side off, you have complete access to the whole motherboard and its numerous slots. Right in the middle is the 200MHz 604e processor daughterboard, and slightly below this is the slave processor slot which caused such a stir in the Pulsar 1500, being the first of its kind. A card for this slot should be available before the end of the year, meaning you can upgrade this clone to a dual-processor machine later. IMC reckons that both slots will accommodate quad-processor cards when they appear in force, enabling the Pulsar to accept an astonishing eight PowerPC processors.

To the back and bottom of the 604e/200 are the six PCI slots. One of these is taken up by an IMS Twin Turbo 128-bit graphics card, which supports both Apple and VGA (PC-standard) monitor ports on the back of the machine. Coupled with the card's undeniable graphics power, this is a great bonus because it gives you a much wider choice of monitors. The lower five PCI slots will accept 12-inch PCI cards, while the topmost one is an "enhanced" PCI slot which will take any 7-inch PCI card or Umax's Mercury card when it appears in the next couple of months. The Mercury card will provide you with an ultra-fast SCSI connection and a 10BaseT Ethernet port, enabling faster-than-normal Ethernet network connection. Towards the top-middle of the machine are the eight DIMM slots (for memory expansion using Dual In-Line Memory Modules, standard in all current Macs). These support DIMMs up

Heart of the matter

The inside of the 604e/200 is much the same as the Pulsar 1500 reviewed in MACFORMAT 42. The main differences are its processor speed and an extra 2Mb of VRAM on the graphics card.



1 Processor daughterboard. Based on a 200MHz 604e PowerPC chip.

2 Slave processor slot. This will enable you to fit a second processor card at a later date.

3 Six PCI slots. One is taken up by an IMS Twin Turbo 128-bit graphics card.

4 DIMM slots. Eight in all, enabling you to fit a total 1,040Mb of RAM

5 Internal 3.5-inch drive bay. The Pulsar has four spare bays in all: three 3.5-inch and one 5.25-inch.

6 Eight-speed internal CD-ROM drive. Now standard in all new Macs and Mac clones.

How fast?

We tested the Umax Pulsar 604e/200 for raw power using *MacBench 3.0*. The results are given as percentages against a benchmark Mac – the PowerMac 6100/60. The higher the percentage, the faster the Mac was in a particular area. We've included Apple's PowerMac 9500/200 for comparison.

Machine	CPU	FPU	Disk	Graphics
6100/60 (benchmark)	100%	100%	100%	100%
PowerMac 9500/200	415%	439%	248%	660%
Umax Pulsar 604e/200	414%	440%	238%	1,049%

to 128Mb each, which give the Pulsar a maximum RAM capability of 1,040Mb.

Bundled with the Pulsar you get FWB's *CD-ROM Toolkit* and *Hard Disk Toolkit, ClarisWorks, TechTool* and a PowerPC screensaver. The manual for the Pulsar is very good (but not quite up to Apple's standard). It covers setting up, installing software and day-to-day use in detail. There is also a hefty troubleshooting section.

In use, the Pulsar is very fast indeed. We tested it using *MacBench 3.0* – a program designed to test the speed of Mac peripherals. This took care of the scientific approach, and we also performed a range of real-world tests (see the box above for results). We put 48Mb of RAM into the Pulsar and assigned 40Mb of it to *Photoshop*. It opened a 20Mb file in five seconds and performed a four-pixel Gaussian blur (see margin note) on it in 21 seconds. It converted on-screen colours (RGB) to process-print colours (CMYK) in ten seconds, and whipped through an eight-pixel colour halftone filter in an amazing 43 seconds – around three times quicker than our office 7200.

The 604e/200 also smashed through a 640 x 480 anti-aliased raytraced render in *Strata StudioPro* – which gives a smoother image and is normally very time-consuming – in a mere 25 minutes and 40 seconds, which is almost identical to the speed we got from a 9500/200. Overall, the Pulsar has the same raw processing power as Apple's 9500/200, but it has a huge graphics speed advantage, mainly because of the 128-bit IMS graphics card it comes with – this card was 40% faster in our tests than the 64-bit ATI card bundled with the 9500.

The Pulsar 604e/200 is a great piece of kit, if a bit expensive. It's very difficult to fault this machine technically, but it falls just short of a MACFORMAT Classic award because of its price. Despite having more extras than the 9500 – a two year warranty for starters – it still isn't cheap. If IMC drops the price by just a couple of hundred quid, then it will be *the* high-spec Mac to buy. **MF**

Gaussian Blur

This is a *Photoshop* filter that blurs an image by adding a degree of low-frequency noise. The result is smooth, realistic colour gradients. The technique is named after Gauss, a 16th-century German mathematician.

Umax Pulsar 604e/200

A good machine, with superb technical specifications, but just not quite cheap enough to make it the *must have* product. If you can get your hands on one for less than £3,500, you've got a hell of a bargain.

Features	90%
Ease of use	91%
Documentation	81%
Value for money	85%

MF rating 88%

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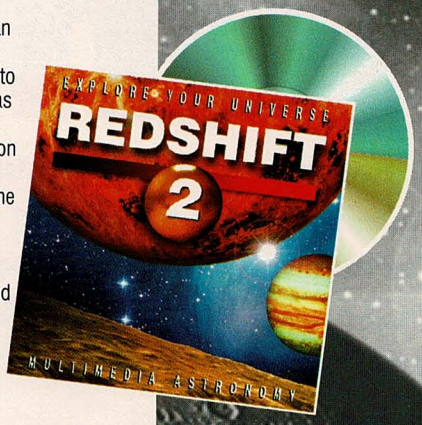

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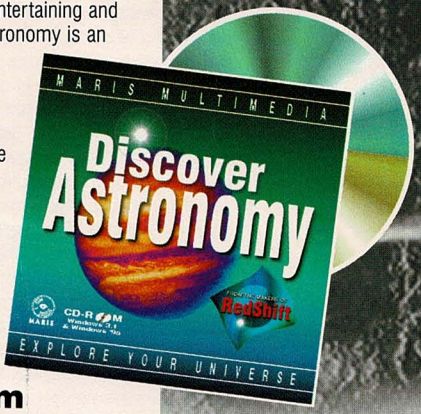

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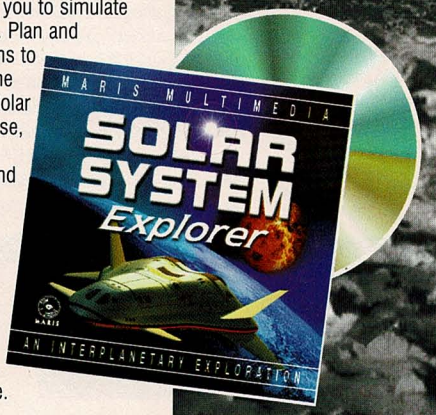

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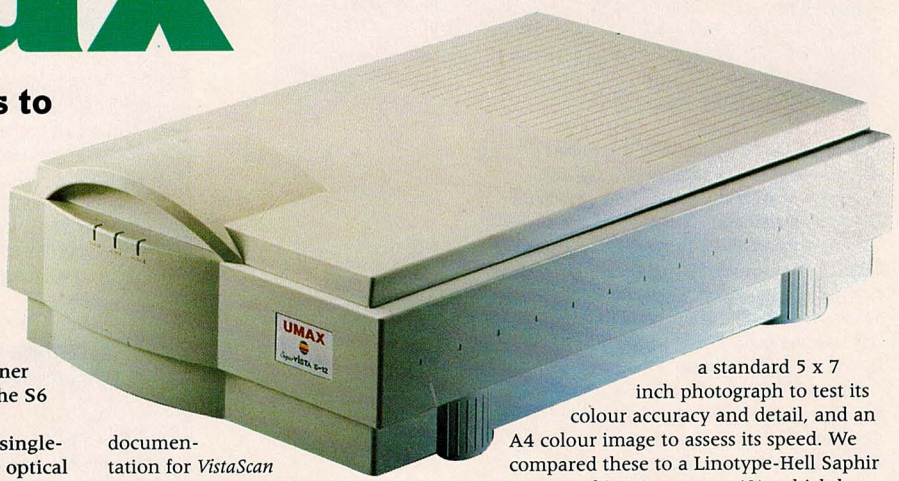
MAC	**Processor:** 68020 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**Extras:** Optional Transparency Adaptor, £582		

Umax S-12 scanner

Umax's new scanner claims to take high-res scanning further than ever before – fast on speed, low in price and high on quality...



Umax's Vista S-12 scanner is the big brother to the S6 we reviewed back in MACFORMAT 41. It's a single-pass A4 flatbed scanner with an optical resolution of 600 x 1,200 dpi – fairly standard these days for a scanner in this price range. The S-12 is reasonably compact at 336 mm wide, 525mm deep and 131mm in height. On the back are a power on/off switch, one 50-pin and one 25-pin SCSI connector and a SCSI selector switch. There is also a connector for an optional transparency adaptor, which costs an extra £582. SCSI and power connection cables are provided.

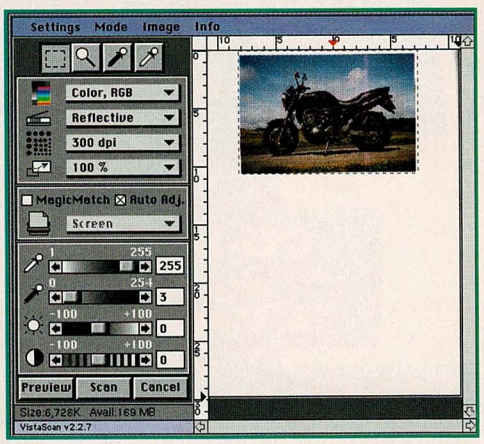
You also get a bundle of software for different scanning jobs. *VistaScan* is a small utility with which you can use the *Photoshop* plug-in included, even if you don't have *Photoshop* – and it uses less of your Mac's memory. It's very neat and quick to use, if lacking in sophisticated colour correction. The Binuscan *PhotoPerfect* software is a more complex and powerful program for batch-scanning and automated colour correction, but it uses 8Mb of RAM where *VistaScan* takes only 3Mb. If you're new to scanning, you might want to give it a miss and just use the friendlier *VistaScan* with the plug-in.

The documentation for *PhotoPerfect* is next to non-existent, covering just the basics for installing the program. The documentation for *VistaScan* comes in electronic form and is much better. It covers all functions of the program in depth *and* in understandable language, explaining the fundamentals of scanning as well as the jargon you'll encounter.

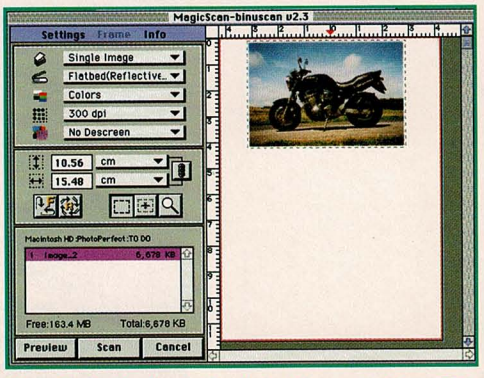
The S-12 also comes with *PageManager*, a nifty little package for managing your scanned documents. You have your own work-space with an in-tray and an unlimited supply of folders. Anything you import is automatically saved (but easily deleted if you choose), and you can also import text or picture files from other programs and edit them as required. It has OCR (Optical Character Recognition) built-in, so you can scan in pages of text and convert them from pictures to editable text. The OCR part is a bit slow, but it's still a hell of a lot faster than typing it in yourself. It also recognises text blocks as well as type styles such as bold or italic. *PageManager* can also link to any number of programs. You can scan in a page of text, run it through the OCR and then have *ClarisWorks* or *SimpleText* open it as a new file, at the touch of a button.

The Vista S-12's quality is impressive for a scanner in this price range. We used a standard 5 x 7 inch photograph to test its colour accuracy and detail, and an A4 colour image to assess its speed. We compared these to a Linotype-Hell Saphir (reviewed in MACFORMAT 41), which has the same optical resolution but costs three times as much. The S-12's scans were good, although (not surprisingly) short of the pre-press quality the Saphir boasts. The S-12 picked up most colours fairly accurately, but it did have a little trouble with very subtle colour gradients and with high-contrast images. At 600dpi, scans were a little fuzzy and very fine detail got lost. Using the "Sharpen" function in *VistaScan* fixes the slightly blurred edges, but it can't replace detail that the scanner has missed.

That said, though, the S-12 is very fast (see table below), and its image quality is very impressive at the price. The 9,600 x 9,600 software-interpolated resolution is a red herring – anything near that is just too blurry – but its true resolution and speed make it a very good value high-res flatbed option. **LINDSAY BRUCE**



The *Photoshop* plug-in for the S-12 is easy to use and offers all the features you'll need for most scanning jobs – and all within 3Mb of RAM...



PhotoPerfect looks similar, but with more options. The actual scan is easy, it's just the processing and batch-scanning that's more complex and takes 5Mb of RAM.

Umax S-12 scanner

An impressive scanner, which does all it claims to – for the price, an excellent buy.

Features	**85%**
Ease of use	**72%**
Documentation	**82%**
Value for money	**89%**

MF rating 86%

Scan speed

Test scan	Manuf. time*	MF test time
5" x 7" photo, 240dpi	N/A	17 secs
A4 line art, 300dpi	8 secs	22 secs
A4 greyscale, 300dpi	8 secs	34 secs
A4 colour, 600dpi	32 secs	2min 40sec

*** Manufacturer's times don't include calibration or data transfer times. In real world use, these contribute to the time it takes to do a scan. Data transfer rate depends largely on the kind of Mac you connect the scanner to – a faster Mac will process the data faster.**

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MAC	POWERMAC	REQUIRES
Processor: any	**Processor:** any	A Mac capable of outputting a resolution of 1,280 x 1,024 max • **Extras:** Mac adaptor required (£14)

Hitachi 17MVX V2

Fed up with the size of your screen? With a 17-inch monitor, you can see more of what you're working or playing on. There's more room for detail, but does Hitachi's new MVX V2 make the grade?

Hitachi's new 17MVX V2 monitor is an updated version of the 17MVX, which we reviewed back in MACFORMAT 40. It's an FST (Flatter Squarer Tube)-based monitor with a maximum resolution of 1,280 x 1,024 pixels at 60Hz. The total viewing area is 321mm x 236mm and it has a dot pitch – the distance between pixel centres – of 0.28mm. The MVX V2 is reasonably compact and lightweight, and it connects up quite easily – although you will need the optional Mac adaptor, which costs an extra £14.

The design of the monitor is a bit plain – which is actually no bad thing. On the front of the casing are a power on/off switch and six selector buttons to control the on-screen menus. The latter are reasonably good, but all the positional and picture controls are lumped together, ensuring you've developed a callus on your finger by the time you've got to the one you want. A degauss function – used for demagnetising the monitor and helpful in preventing picture distortion – is provided, and you'll also find a host of positional and geometric controls for fine tuning of on-screen images. You can even substitute your company name (or a welcome message) for the Hitachi name under the on-screen menu as long as it's ten characters or less – a cute feature.

The quality of the display is quite impressive, especially for an FST screen. As for documentation, the MVX V2 comes with a fairly thin manual in English and German. This takes you through all of the monitor's features and offers a small troubleshooting section which consists of simple things like "Is the monitor plugged in?" It reads like a bad stereo manual, makes heavy use of technical jargon and it's all very PC-orientated. This is all a shame, given the quality of the monitor and the excellent value for money it represents. **LINDSAY BRUCE.**

Trini-what?

There are two types of monitor: FST (Flatter Squarer Tube) and Trinitron. Trinitron monitors generally offer sharper on-screen images, but are more expensive. FST monitors are an efficient and cheap alternative. A good FST monitor is better than a bad Trinitron.

Hitachi 17MVX v

Disappointing documentation but good picture quality and comprehensive controls – impressive for the price.

Features	**88%**
Ease of use	**76%**
Documentation	**65%**
Value for money	**89%**

MF rating 83%

What to look for in a monitor

The monitor is a crucial part of your Mac setup – after all, that's what you'll be staring at for hours on end. When buying a monitor, the first consideration is size. The conventional measure is the distance diagonally across the screen (but the "viewable" area is often a good few centimetres less). Common monitor sizes are 14-inch (standard), 15-inch, 17-inch, 20-inch and 21-inch.

Next comes resolution – how many pixels (picture elements) the monitor can display. Standard Mac screen resolution is 640 x 480 pixels; common higher resolutions are 800 x 600, 832 x 624, 1,024 x 768, 1,152 x 870 and 1,600 x 1,200. You won't find these last two on any monitor smaller than 17 inches. Larger monitors tend to be multi-sync – that is, they are capable of displaying more than one resolution. Higher resolution means not just a bigger viewing area and more Desktop space, but more detail on screen.

All Macs made in the last three years can "drive" a monitor displaying thousands of colours at 640 x 480, but the video circuitry in some Macs can't pump out the amount of information needed to display higher resolutions and more colours. Using a 21-inch monitor usually requires a video card or a Video RAM upgrade.

The next thing to look out for is the monitor's dot-pitch (stripe-pitch on a Trinitron). This is the distance between the centres of adjacent pixels, typically between 0.28mm and 0.25mm. Generally speaking, the lower the figure, the sharper the on-screen image.

The last vital item is the screen refresh rate – how fast the image is updated. This may be anything from 30 times a second (30Hz) to 100Hz – the higher the rate, the more flicker-free the image.

Another good feature to look out for is on-screen controls, which enable you to adjust the brightness, contrast, shape, size and position of the image on-screen. Another handy feature is a degauss button. Electrostatic charges can build up in your monitor, which can distort the picture. Degaussing eliminates these charges.

For more info, and reviews of 18 top 15 and 17-inch monitors, see MACFORMAT 40. If you missed that issue, see page 128.

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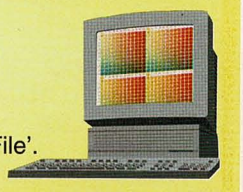

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PRICE	Interactor £69.99, Interactor Cushion £99.99 inc P&P.	**ON SALE**	Now	**CONTACT**	Aura on 0117 9490902	**WEB SITE**	None.
MAC	**Processor:** Any. **RAM:** None.	**POWERMAC**	**Processor:** Any. **RAM:** None.	**REQUIRES**	Sound out port.		

Aura Interactor

Are those explosions in *Doom* just not genuine enough for you? Do you long to experience those jolts and thuds for real? The answer is simple – strap on an interactive cushion and feel the force!

The Aura Interactor will send shockwaves through you – and you'll feel silly in it too.

There's one big problem with playing games on your Mac, when you get down to it: no matter how involved you get, you're still just sitting in front of your monitor. Headphones help create the right ambience, but you just don't get enough feedback from a keyboard, mouse or joystick. The Aura Interactor and Interactor Cushion are designed to enhance games like *Marathon* and *Doom* by sending shockwaves through your body – making explosions seem more realistic and the rattle of machine-guns jar your body.

It's quite a simple idea: a speaker you plug into your Mac's headphone port via an amplifier. The speaker then thumps low frequency sound waves through your kidneys, immersing you in the sensation of the game you're playing.

The Aura Interactor version is rather like a backpack that you strap on, akin to those packs you wear if you go playing Quasar. The pack plugs into an amplifier unit which filters out the high-frequency sounds from your Mac and boosts the low-frequency signals. Proceed to play your favourite blast-'em-up games and be amazed as explosions literally thump through your body. It certainly adds an extra dimension to game-playing.

The drawback is that you might just conceivably have cause to feel... well, let's say a little *self-conscious* wearing this device. The Interactor Cushion may be a bit more practical. It's simply a cushion with a built-in speaker that you prop behind your back in your favourite game-playing seat. It does the same job, but is less conspicuous and more comfortable to use.

Both devices use similar amplifier units which sit on your desk, and a mini-jack plug is provided for connecting your Mac's sound-out port to the amplifier. You can connect the Interactor to almost any sound source, including TV, video or hi-fi, as well as most common consoles and PC compatibles as well.

The controls are minimal, with a volume (or "Intensity") control and a "Filter" control which doesn't seem to do anything useful; the only mention in the documentation says just "set it to ten".

A switch is provided for tailoring the amplifier's audio response to either game sound-effects or music. On the "music" setting, the sound output is less distorted, but not much. Another switch offers pre-set frequency bandwidths, so that you can choose to let more or less of the signal through – although again these aren't mentioned in the documentation, and it's almost completely a matter of subjective preference (or possibly comfort).

Sound Out?

Surprisingly enough, the idea does work – sort of. Both the Interactor and Interactor Cushion do add a kind of realism to some games. Neither device is any good as a speaker – both produce incredibly distorted deep bass sound that you're meant to *feel*, not hear. Ideally, for a comprehensive Sensurround(™) experience you really need to attach extra sound equipment to your Mac, such as a pair of external speakers. A splitter jack is provided for just this, enabling you to plug both speakers and the Interactor into your Mac's single sound port.

We road-tested the Interactors in the office working alongside two external speakers and a sub-woofer (see margin note) on the floor under the desk. To make the test as extensive as possible, we played network *Marathon 2* over a prolonged period of time to see if any discomfort ensued. (It's the best excuse I've had in a long time, okay?) We played quite happily for several hours without complaint – although one of the amplifiers packed up part way through – and the cushions *do* genuinely work. But it's only when you come close to a large explosion or fire the assault rifle that you really feel a kick. Just like real life.

Side Effects

The unfortunate side effect to the Interactor is still being able to *hear* the terribly distorted sound it produces, although clamping a pair of headphones on will solve this. Vivaldi's *Four Seasons* certainly isn't enhanced by the Interactor, and a quiet game of *Tetris* suddenly becomes a battle to keep your internal organs intact. The cushions are really only good for shoot-'em-up games like *Marathon*, *Doom*, and *Abuse*, or other genres that you want to transform into particularly visceral experiences, like perhaps *IndyCar Racing*.

So are they worth the money? The Interactors' sound output isn't good enough to actually listen to – for that, you'll need to invest in a good pair of external speakers for your Mac first (see our speakers group test in MACFORMAT 40). But for die-hard game-players who wish they could really step into their games, they do add that extra dimension of authenticity. **LINDSAY BRUCE**

Sub-woofer

A sub-woofer is a type of speaker designed to handle low-frequency sounds. Sub-woofers are used to provide the thumping bass in sound systems, adding an extra dimension of reality to the music.

The Interactor Cushion can be propped up behind you as you play – and shudder...

Aura Interactors

Add a gutsy realism to games – but then, £100 could buy you a lot more games too...

Features	**76%**
Ease of use	**80%**
Documentation	**79%**
Value for money	**70%**
MF rating	**74%**

What the hell is this?

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A beam in your own eye 11
Laser projectors beaming pics directly into your eye. Science fact, mate
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MACFORMAT Classic

CorelDraw 6

It's been a long time coming, but now that *CorelDraw 6* has finally made it to the Mac, was it worth the wait? Alistair Dabbs takes an in-depth look at what this new package has to offer.

Bitmap

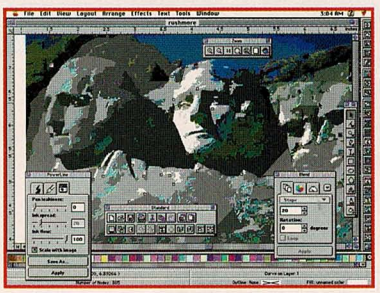
Bitmap files use dots to present their images, which are typically rich and textured but can only be viewed within a narrow range of sizes before the dots become too obvious.

Vector

Vector files use mathematical instructions like curves and polygons to make images. You can resize a vector graphic to any size and still keep absolutely accurate detail, but it's more difficult to create the photographic richness you can get with bitmap images.

At last it's here: the world's number one graphics package for the PC has finally been redeveloped for Mac release. There have been a couple of false starts in the past, with rumours of a Mac version having surrounded the launches of both *CorelDraw 4* and *5*, but Corel has finally delivered on its promises this time round. The key question now is: can *CorelDraw 6* stand up against old favourites like *Adobe Illustrator* and *Macromedia FreeHand* in the exacting and sophisticated Mac illustration market?

In the first instance, *CorelDraw* isn't actually entering the battle in ignorance of what these Mac mainstays can do, since both *Illustrator* and *FreeHand* already exist in Windows versions. But Corel isn't taking any chances; in the boisterous belief that bigger is better, the company has produced a graphics software suite to beat all others. When you buy *CorelDraw 6*, you get a lot more than just a vector illustration application – the three-CD set also includes a bitmap image editor, a professional 3D modelling and animation package, a top word processor, graphics presentation software and enough utilities, free fonts and clip art samples to make even the most hardened artist slaver.



Pom, pom, pom, splodge! Can you tell what it is yet? It's supposed to be Mount Rushmore, traced freehand from a photograph using a graphics tablet, with dithering effects applied afterwards. Needless to say, *CorelDraw* supports pressure-sensitive devices for drawing by hand.

The suite is being presented as the ultimate graphics software line-up: buy *CorelDraw 6* and you won't need to buy anything else. How successful this scheme is rather depends on what software you already own and use, and how powerful you need your software to be. We've broken *Corel* down into its component parts throughout our review to help you decide if it would be a worthwhile solution for you.

All these individual applications shouldn't detract too much from the core application, *CorelDraw* itself, which is every bit a high-end illustration tool. *CorelDraw* is a multi-page, Bézier-curve, vector graphics package, with strong support for integrating bitmap images into your work, as well as extremely powerful features for creating unique effects. If you use a Mac and you don't see anything new here, you simply haven't looked properly.

Roll up, roll up!

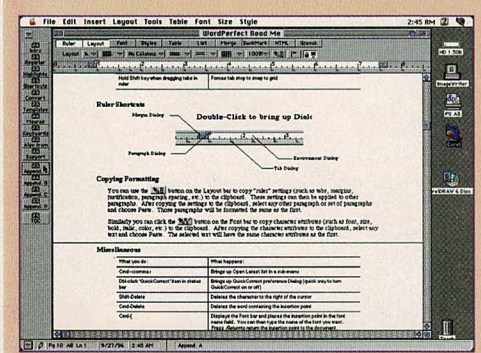
In addition to the main toolbox, *CorelDraw* makes use of a series of floating palettes called **Roll-ups.** Ironically, these get their name from the PC version, where double-clicking on a palette minimises it to its title bar. On the Mac, this only works if you have your **WindowShade** Control Panel (from System 7.5) switched on. The intention of the Roll-ups is to keep you out of a profusion of menus and dialogue boxes and closer to your artwork. To this end there are a huge number of these Roll-ups, controlling everything from colour space to text. There's even a further Roll-ups tool palette provided, just to help you manage them all.

Once you get the hang of opening and closing the Roll-ups you need most often, you'll find the system works very well in comparison to the over-large floating palettes in the likes of *Illustrator*. Not so impressive is the way in which *CorelDraw* separates **Object Selection** and **Node Editing** into two individual editing tools. Use the pointer arrow to select an object

You can place bitmap images within your vector artwork swiftly, although there are signs of preview degradation you'd usually see as the vector graphics engine tries to handle large bitmap areas. Sadly, *CorelDraw* itself does not support *Photoshop*-compatible plug-in filter effects.

Corel WordPerfect 3.5.1

Shortly before launching *CorelDraw 6*, Corel decided to include its smartened-up release of *WordPerfect* – the word processor it purchased from Novell earlier this year. It's one of the best word processors you can buy, and Corel is offering it as part of this massive software suite.



***WordPerfect 3.5* has a great balance of ease-of-use and sophistication – and it's part of *CorelDraw*.**

Comparisons with *Microsoft Word* are inevitable, since *WordPerfect* is a similar kind of graphical word processor with advanced layout features, form data support and a built-in drawing utility. This makes it appropriate for heavy-weight office tasks from high-quality mail merges to designing newsletters, but the package goes far beyond paper alone.

***WordPerfect* is probably the most multimedia-capable word processor you can get, not just supporting embedded audio and video, but even enabling you to create mini QuickTime animations using the type on your page. If you're a Web author, you can use *WordPerfect's* built-in HTML filter, or just create ordinary *WordPerfect* documents with built-in hypertext links.**

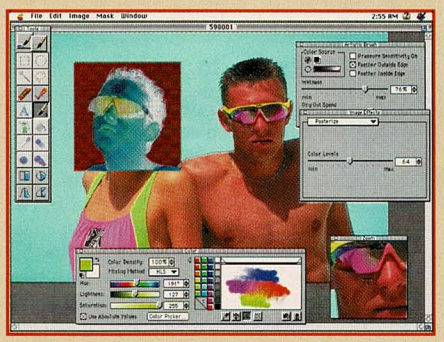
Best of all, *WordPerfect* is fast, launching in about a quarter of the time it takes *Word* to open, and it speeds though the jobs you use it for. The interface might be top-heavy at times, and if you're a graphic artist you may not have considered buying a full word processor before. But now, thanks to Corel, you don't have to.

Corel Artisan 6

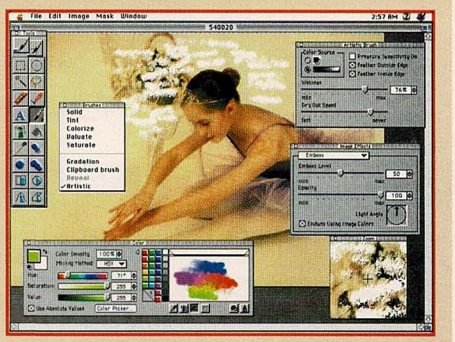
Corel's image editing and photo retouching application, curiously named *Artisan 6* (even though there's no such thing as versions 1 to 5), is a sound reminder of why *Adobe Photoshop* is still the king of its kind. *Artisan* desperately wants to be *Photoshop*, but like many lower-cost competitors it can't quite make the grade. Still, when you compare it with other mid-range image-editors like *PhotoFix* and *Color It*, it looks quite nifty.

Like *WordPerfect*, *Artisan* also runs fast; unlike *CorelDraw*, it operates with a very clean and uncluttered interface. There are standard Selection and Paint tools in a floating palette, and there's a single Colour palette which includes a collapsible colour-mixer scratch pad. The program supports serious editing techniques, from masking to paint-on blurs and blends, and even manages to support standard *Photoshop*-compatible plug-ins. But there are no layering or colour channels (an essential part of *Photoshop*) to work with, and the paint tools don't paint so much as leave a trail of circular blobs when you drag the mouse. Most bizarrely of all, there is no Zoom tool! Instead you have to rely on a separate window.

Despite these gaps in its range of features, *Artisan* is better than many image editors, and supports both GIF and JPEG formats, enabling you to create graphics for use on the World Wide Web. But it's not a package you'd go out and spend money on as a stand-alone.



***Artisan's* Posterize filter isn't very effective, as you can see, and the only way of zooming in on your work is to use a floating Close-up window.**



If you get fed up with the trail of blobs left by the Paint Brush tool, you can always use the Artistic brush to cover them up.

or group, and it is highlighted simply as corner nodes of an invisible bounding box; you'll need to swap to the **Node Editing** tool to view and alter the shape. This can make selecting one object out of a mass extremely difficult, and Bézier curve editing less than intuitive.

On the other hand, a second click on an object or group calls up instant transformation controls where the corner nodes previously were. This means that within the one selection tool, you can move, resize, rotate and shear an object – tasks that would require you to make frequent visits to the main toolbox in any other drawing application.

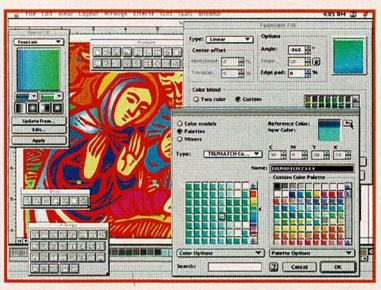
What really puts *CorelDraw* in a class of its own is the sparkling array of editing enhancements and special effects you can call upon via the Roll-ups. One example is the **Extrusion** Roll-up, which works almost exactly like an integrated version of the text manipulation program *AddDepth*, or a simplified edition of *Adobe Dimensions*. Just select any object or text, and you can apply an instant 3D extrusion (or lofting) effect to it, complete with plain or gradient colours, up to three light sources and the ability to fine-tune the camera-view rotational aspect in 3D space.

Just imagine: all this power is available to you directly within one application and can be applied using one small floating palette.

You want more?

CorelDraw comes with many similar integrated controls, which other packages offer only as separate modules or third-party add-ins. For example, another Roll-up enables you to select a group of objects and edit the lot at once, putty-like within an **Envelope**. The **Powerline** Roll-up enables you to customise the way in which the freehand pen tool nib reacts, in order to create calligraphic effects. Having set up an effect you like, you can then retroactively apply it to any outline or rule you've created earlier.

It's a key *CorelDraw* feature, this ability



Colour support is one of *CorelDraw's* strongest features, which is unusual for a program that originated on the PC. Fountain fills have several levels of customisation beneath the Roll-up surface.

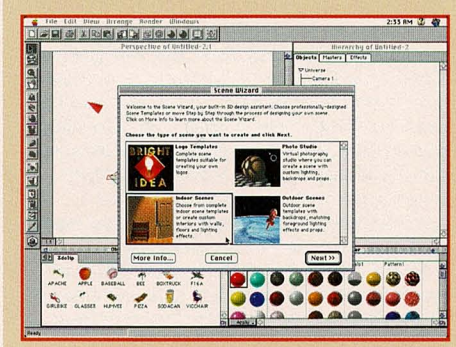
CorelDream 3D 6

Corel is a master of the art of licensing software and putting its own name on the box. In this instance, *CorelDream 3D 6* turns out to be *Ray Dream Designer 4* with a minute number of changes – changes so small that if you're familiar with *Designer*, you might not spot the difference for a while.

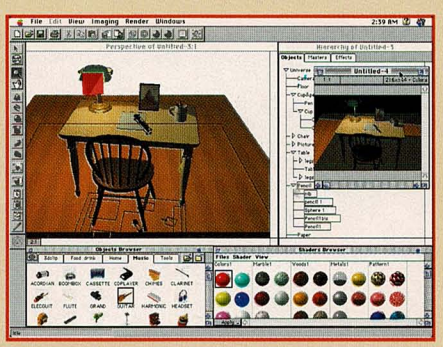
CorelDream 3D 6, just like _Ray Dream Designer_, is an attractive and largely intuitive 3D graphics and animation application. It's based almost entirely around a drag-and-drop interface of multiple windows and palettes, so you'll find you won't need to spend any time with the manual until the day you want to do something more complicated.

Instead of following its rivals' multi-view approach to 3D, *CorelDream 3D* enables you use a single camera view on your scene, backed up by an outliner and separate windows only when you run a render.

If you're just getting started with 3D, the application comes with automated scene-building helpers. If you are a more advanced 3D artist, *CorelDream 3D 6* is actually a swift and powerful package, particularly considering its class, and is well worth adding to your graphics software line-up.



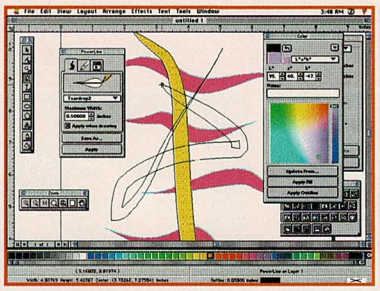
***CorelDream 3D's* Scene Wizard shows how to build a complete scene from scratch. It's limited but useful if you're getting started in 3D graphics.**



Modelling is fast enough that you can work in semi-rendered mode and just run a Fast Render from time to time to see how shadows are falling.

More features

You've had to wait a long time for *CorelDraw* to reach the Mac; but now it's here, it's not identical to the Windows version. Windows users may get presentation software, but on the Mac you get texture generation, a charting package and *WordPerfect*.



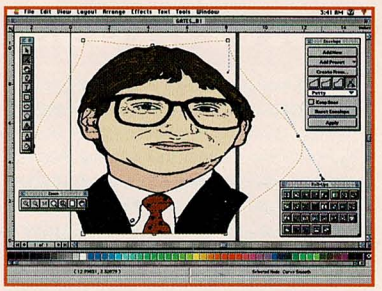
The Powerline feature enables you either to customise the freehand pen nib or to use built-in presets. Any Powerlines you make can be applied to outlines and strokes retroactively if you so desire.

to customise object properties and then apply those properties to quite different objects that already exist. One interesting approach to this is provided in the **Clone** command, which appears to work in the same way as any **Duplicate** command, except that the duplicate object retains a link with the original's properties. This means you can carry on working with the original objects, altering and editing them as you wish – but any changes you make to the original object will also be carried out automatically on all the duplicates you cloned from it. On those occasions where you have created scores of duplicates from an original object, and then decide you want to change their colour, you will fall hopelessly in love with the **Clone** command.

Ready to go...

CorelDraw's system of presets makes things even easier. There's a large number of pre-built effects for you to choose from within the various Roll-ups: fountain colour fills, extrusions and so on. There is even a Roll-up that contains all these presets in one place, and you can customise and add your own effects combinations to the drop-down list. This makes it easy to highlight any object and apply a complete multi-step effect in one go, without having to delve around numerous dialogue boxes or Roll-ups.

Type support is strong: you can run text along just about any path, for example, even after you have given it effects like 3D extrusion. There is, however, a strange, chunky PC-like feel to all typefaces that you place on your artwork (betraying the program's origins?). This takes some getting used to after the finely cut interfaces of *Illustrator* and *FreeHand*. If you can handle it, though, *CorelDraw* actually offers the same kind of type-layout functionality as these two competitors, providing you with text that



We should have done this a long time ago. One of the three (!) Bill Gates clip art graphics, from the funny but often awful Portraits gallery on the *Corel* CD-ROMs, gets the Envelope Roll-up treatment.

flows between columns and more.

You can import bitmap graphics such as scanned photos into *CorelDraw* without a hitch; but sadly, you aren't provided with *Photoshop* plug-in support, so you can't do very much else with them once you've imported them. It must be said, though, that *CorelDraw* comes with the largest set of import and export filters of any package of its kind, in most cases accessed transparently through the **File Open** or **Import** dialogue boxes. The EPS filter for sharing files with PostScript graphics packages is one of the best non-Adobe filters anywhere, and *CorelDraw's*

What else do you get?

The answer is that you get an awful lot more. Packed onto three CD-ROMs, *CorelDraw 6* spans the whole range, from applications to utilities, to extras and freebies, and none is to be scoffed at.

To start with, there is a first-class bitmap tracer called *CorelTrace.* This stand-alone program converts bitmap graphics and photos to vector artwork which you can then open in *CorelDraw* or save as EPS files for opening in *Adobe Illustrator* or *Macromedia FreeHand.* You can control the colour sensitivity, vector node smoothing and more, and the program is surprisingly fast. After a few goes, you'll be wondering how you ever managed without it.

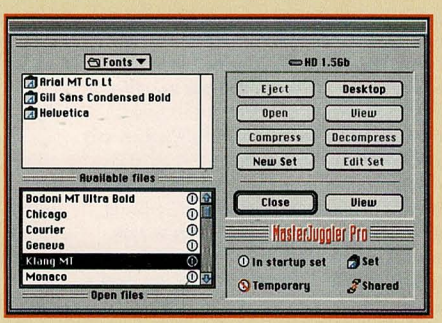
Another part of the bundle that could quickly become a favourite is *CorelTexture,* purpose-designed software that helps you construct texture bitmaps for seamless tiling. It sounds dull in print, but it's actually a comprehensive multi-layer image editing program with a clever interface. The textures are obviously intended for use in *CorelDraw,* but you could equally use them on your Mac Desktop or behind your Web pages.

Talking of Web pages, Corel felt it should go the whole hog and give you a copy of *Netscape Navigator* as part of the bundle. It's only version *2.02,* but it makes a handy alternative to the latest, endlessly crashing beta-stage browser you're probably using at the moment.

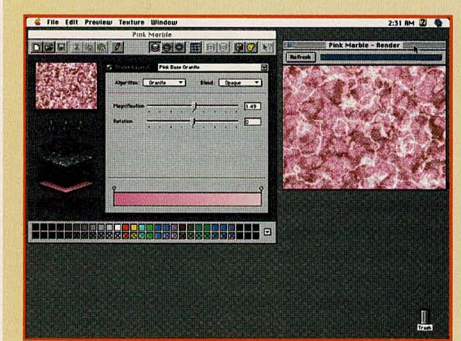
Stepping back to more traditional areas, Corel has also included its *Chart* package for basic business graphics. Unfortunately, although the charting facilities are extensive, they come across as a little old-fashioned. Most business presentation packages are considerably more exciting than *CorelChart's* Gallery, but then they also usually cost you in excess of £200.

Just when you think you've finally touched the bottom of this endless package, Corel comes diving in after you with an almost incomprehensibly generous collection of fonts, clip art and utilities. The CD-ROMs contain 25,000 clip art images and symbols, 1,000 scanned photos, over 750 3D models for you to use in *CorelDream 3D,* and a mountain of fonts. There are over 700 TrueType and 1,000 Type 1 typefaces; and okay, a number of them suffer from hurried design and shabby tracking, but the vast majority are extremely useful. All this material suffers from differing copyright restrictions – some is copyright-free, some requires a credit and some requires that you contact the individual owner – all this is detailed in the manuals.

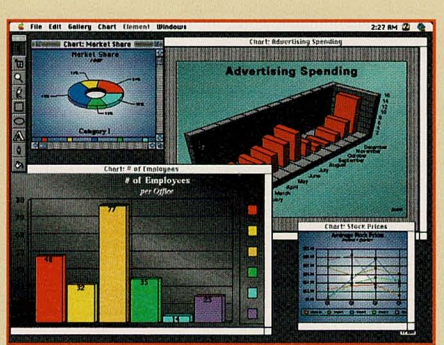
To help you manage this compendium of typefaces and clip art, you'll also find a copy of the *MasterJuggler 2.0 Pro* font and Desk Accessory utility, as well as Corel's own *Multimedia Manager* program which enables you to build custom libraries of clip art, clip photos, audio and video files. Phew!



MasterJuggler **enables you to build not just font sets, but fast menus for Desk Accessories, applications or just about anything you like.**



How more obvious can making textures be? *CorelTexture* is one of the most successful sub-packages you'll find in the *CorelDraw* suite.



***CorelChart* images can look a little old-hat these days, but you can very easily embed them into your *CorelDraw* documents.**

files are fully compatible with the program's PC counterparts, including the latest Windows version.

More powerful bitmap support comes in the form of texture fills, which you can again browse through and apply from a Roll-up palette. *CorelDraw* comes with a heap of useful patterns and textures installed, which you can select by name or using thumbnails, then apply to any **Object fill** instantly. Take a look at the CD-ROMs and you'll find hundreds more textures – and you can create your own too. While all major vector graphics packages do enable you to generate PostScript patterns, *CorelDraw* is unique in providing you with so much creative support for bitmap textures.

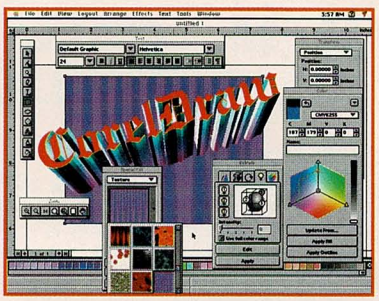
Crystal clear

In other areas, *CorelDraw* manages to leave the competition standing. A good example is the **Lens Effect** Roll-up which includes a unique **Transparency Lens** feature. Quite simply, you can give **Object fills** any transparency value you like, in order to enable objects hidden behind them to show through. You can't do this easily in any major vector-based illustration package, except as a cut-away filter such as the one provided in *Illustrator's* **Pathfinder,** which then prevents you from editing the objects. So far, the only other Mac packages to achieve transparency effects while keeping objects editable at all times are those – like *LightningDraw GX*, for example – that use QuickDraw GX, something which the main *CorelDraw* application doesn't either use or need.

That said, *CorelDraw's* graphics engine is pretty meaty, demanding the kind of disk space and RAM that could leave casual illustrators gasping. Despite hopes that Corel would not heave its unfeasibly huge core engine onto the unsuspecting Mac-owning population, we were destined to be disappointed. While it may not be so unusual for Windows programs to gobble up disk space with library files and rubbish, how do you break it to a Mac artist that they're going to need up to 275Mb of free space for a full install? Yes, read it and weep: *two hundred and seventy-five megabytes.*

The culprit can't be found among the jumble of extra-value products included in the *CorelDraw* suite. Instead the blame rests fairly and squarely on the *CorelDraw* application itself, which requires an absolute minimum of 45Mb to install on its own. Just as seriously, you should put aside at least 20Mb of free application RAM if you hope to get use out of it, no matter what the Corel says about only needing 16Mb. By way of a comparison, *Illustrator* will run in less than 5Mb of application RAM.

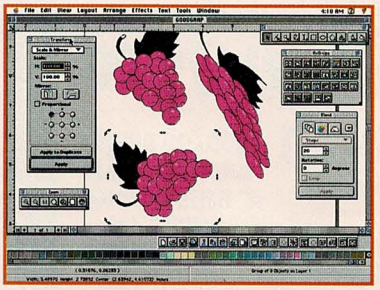
Another memory-hogging culprit is the background support for at least a dozen industry-standard colour matching systems (including Focoltone and Pantone), all of which are provided with an optional gamut alarm, enabling you to make an informed decision about the reproduction possibilities of every colour you create on your RGB monitor. The suite also comes supplied with *Kodak Colour Management* software by default, complete with a photographic scanner calibration target and a fair range of ColorSync profiles.



If you liked *AddDepth*, you'll love the way Corel seems to have integrated that entire text manipulation program into a single *CorelDraw* Roll-up.

All this serves as a sound reminder that even though the *CorelDraw* box has been designed to look like a party invite, it is a professional tool, not a toy. If you have the RAM and the hard disk space to spare, you'll find that *CorelDraw* is a fast-running and seriously powerful application offering many unique features that the competition just can't match. Interface differences and the high hardware requirements won't win it your undivided attention if you already use *Illustrator* or *FreeHand*, but if you're new to design, you'll obtain unbeatable value from purchasing this package. If you are a newcomer, however, and think you might need guidance, it's worth noting that the documentation does leave much to be desired. Despite offering three hefty books – one of which is purely a catalogue of clip art and fonts – it is basic, relying on references to the electronic help file when things get complicated.

That said, *CorelDraw* is a remarkable one-stop solution, providing quite astonishing value for money. If you work in a cross-platform PC and Mac graphics department, don't even think twice before reaching for your credit card. **MF**



There are Roll-ups that enable you to apply standard transformation effects, but the ability to resize, move, shear and rotate "by eye" is provided directly by the selection pointer tool at all times.

Gamut alarm

So far no print medium is capable of matching the range of colours you'll see on a high-quality monitor. *CorelDraw's* gamut alarm warns you when colours in your work may not be reproduced accurately in print.

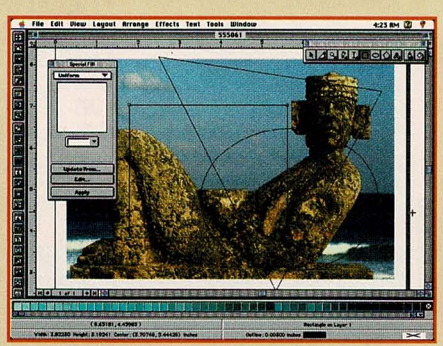
CorelDraw 6

You need a PowerMac, you need RAM, you need hundreds of megabytes of disk space; but if you have these, *CorelDraw* is great.

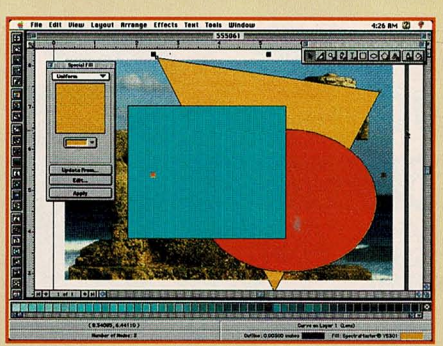
Features	**95%**
Ease of use	**85%**
Documentation	**50%**
Value for money	**90%**

MF rating 91%

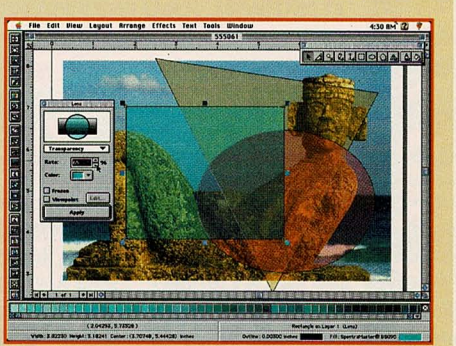
Transparency: a partly-concealed weapon



1 **Prepare for one of *CorelDraw's* most unusual feats: true vector fill transparency. Start off by setting up foreground shapes through which you intend a background picture to show.**



2 **Highlight each of your shapes in turn and give each a solid colour fill. This will blot out the background photo for the moment, just as you would expect.**



3 **Select Transparency from the Lens Roll-up. Here you can enter a value for each colour as you select each shape: the higher the value, the more the background will show through.**

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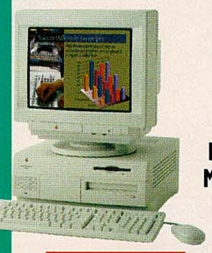

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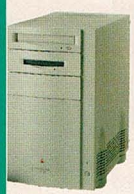

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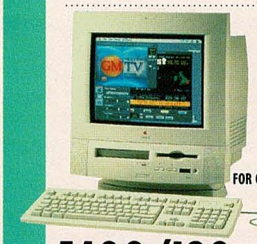

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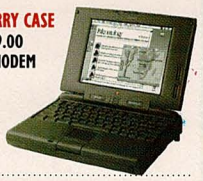

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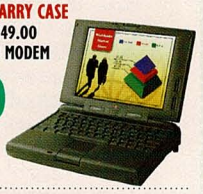

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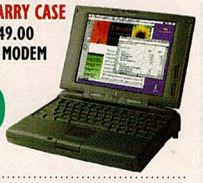

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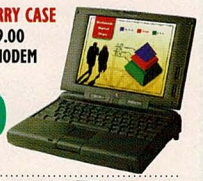

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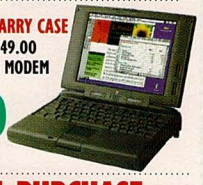

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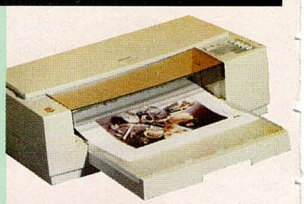

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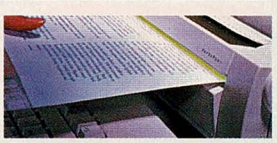

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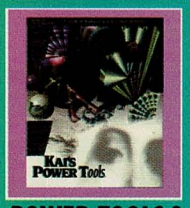

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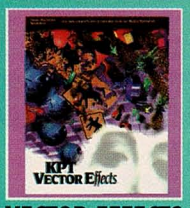

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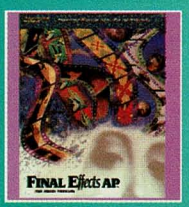

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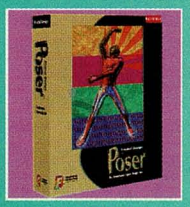

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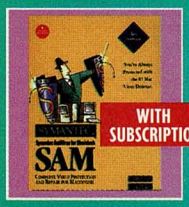

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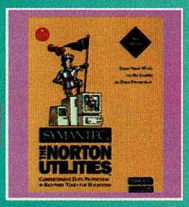

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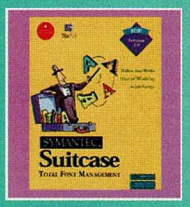

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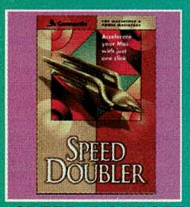

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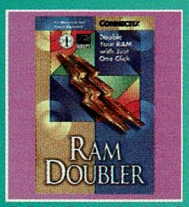

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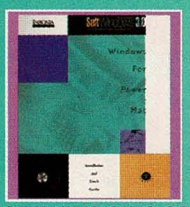

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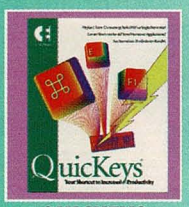

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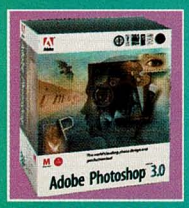

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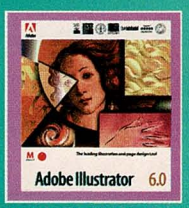

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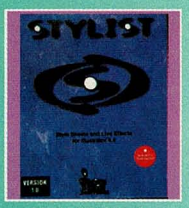

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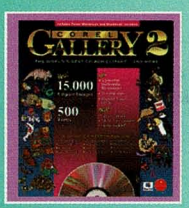

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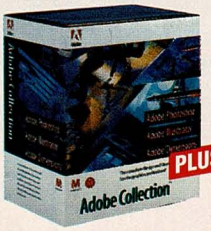

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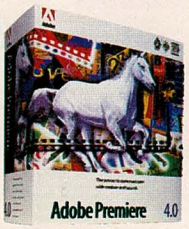

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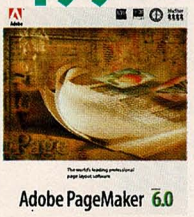

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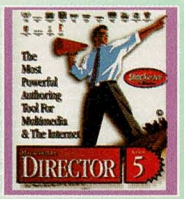

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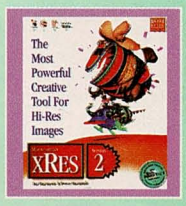

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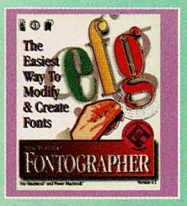

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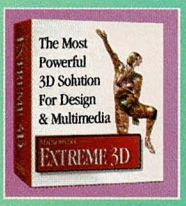

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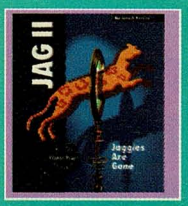

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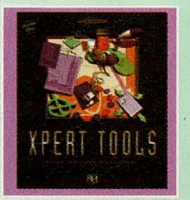

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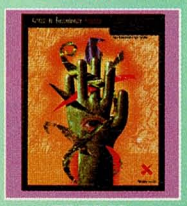

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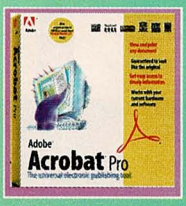

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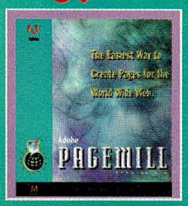

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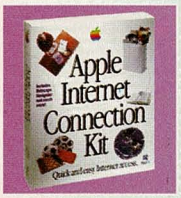

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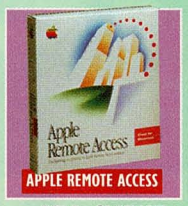

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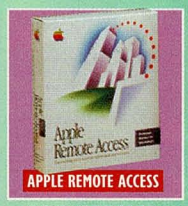

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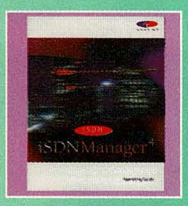

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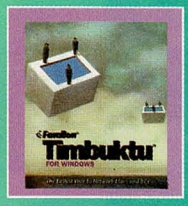

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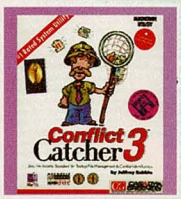

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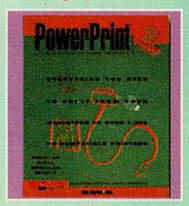

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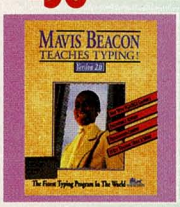

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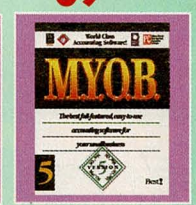

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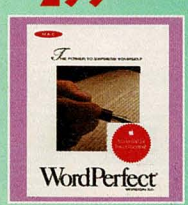

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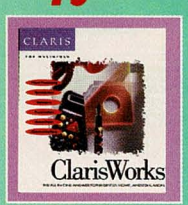

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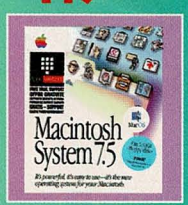

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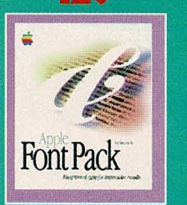

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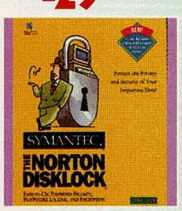

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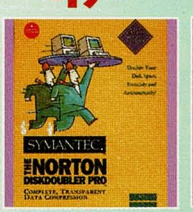

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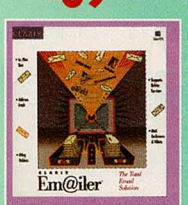

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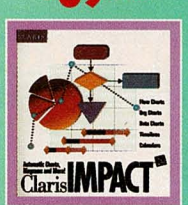

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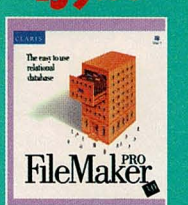

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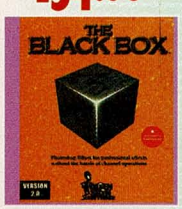

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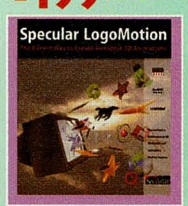

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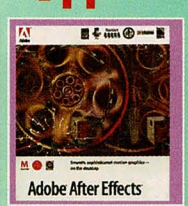

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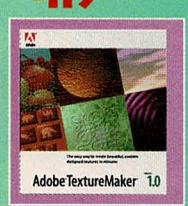

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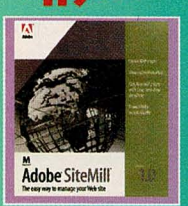

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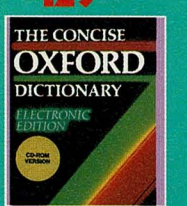

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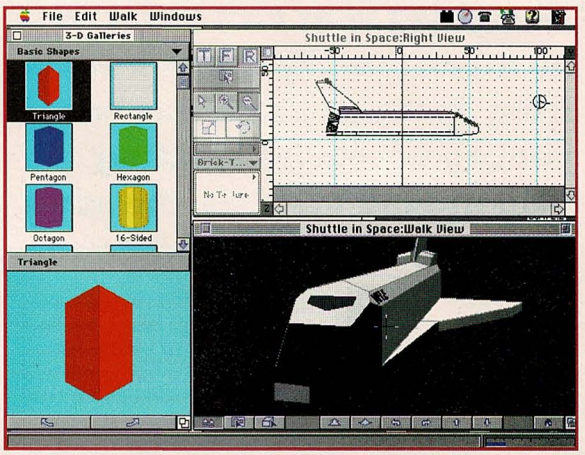
3-D Website Builder

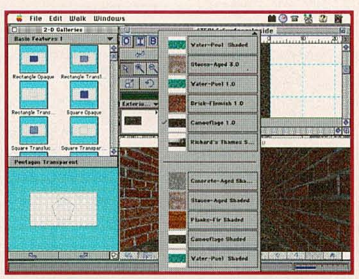
If you think the Web is a bit boring and would be better in 3D, then this is your lucky day. There's now a new program around that enables you to build VRML Web sites. Too good to be true?



VRML: the final frontier. The program has a good selection of ready-built objects – and you can also build more complex ones.

Some people aren't happy with the Web. They reckón that it would be better if it was in 3D, so you could move around a true 3D environment – like you do in real life or in games like *Marathon*. So, some of these people came up with a way of making this happen and called it VRML (see boxout).

However, unless you really enjoyed programming things by hand, it was a bit of a pain to get into. As you might expect, placing an object in a 3D space required quite a lot of mathematics, and that hardly makes building a 3D Web page particularly easy.



Changing textures is simply a question of selecting the object and choosing the texture from the drop-down list.

Fortunately, that's no longer the case. Programs like Virtus *3-D Website Builder* enable you to build a complex 3D world, including detailed objects and textures, without having to do a line of coding. Instead, all you need to be able to do is use a mouse. Once the 3D world has been built, it can then be exported into a VRML file and whacked onto a Web site. Anyone with a Web browser (and a VRML plug-in if their browser requires one) can download this file and enter into the 3D world. Well, that's the theory. Actually, as far as *3-D Website Builder* goes, it works pretty well.

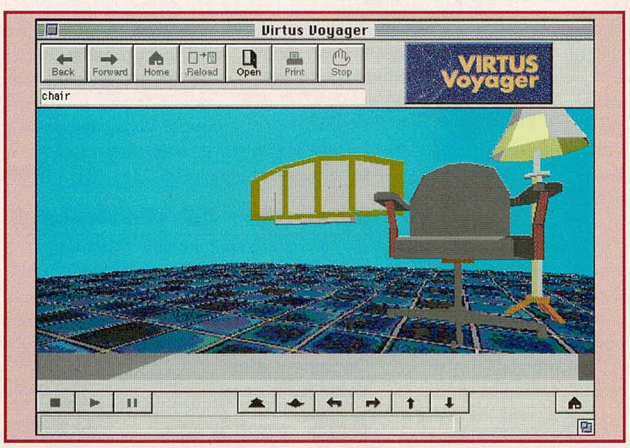
You can create a basic object by simply dragging it from the **Gallery Window** onto the **Design View Window.** More complex objects can be built up from simpler, more primitive ones, and the program also includes a pretty wide range of ready-built objects. If you need even more, additional galleries can also be purchased from Virtus.

You are given a 3D view of your scene in the **Walk View Window,** and you can walk around this as if it was a normal VRML browser. You can also use this view to select individual faces of objects, which is much easier than using the **Design View Window.** Every individual face can have different attributes, including textures, which can be generated by other programs (such as *Photoshop)* and imported into the program. Obviously, textures do take up space in terms of memory, disk space and download time – but they can make an object look a lot better.

The manual is okay, but it does seem to be a bit biased towards the PC version (which is also included on the disc). It includes a tutorial on using both VRML and *3-D Website Builder,* both of which set the scene pretty well.

If you have any experience of using a 3D program, you should feel quickly at home here. There are limitations, though – some of these are to do with the program and some are to do with the VRML standard itself. *3-D Website Builder* is certainly not the fastest 3D program you'll ever see and the *Voyager VRML Browser* still has some bugs in it, which cause it to lose faces and parts of objects. A new version of this standard has just been approved (called VRML 2.0 or *Moving Worlds*), but *3-D Website Builder* doesn't yet support it.

BILL BOW



The PowerMac version of the *Voyager* VRML player has a few bugs (as you can see from the strip at the bottom of the screen.)

Fully working save-disabled version

3-D Website Builder

A good, if occasionally basic, introduction to VRML. Doesn't support VRML 2.

Features	**75%**
Ease of use	**82%**
Documentation	**75%**
Value for money	**80%**
MF rating	**75%**

What's VRML?

Virtual Reality Modelling Language (or VRML as it's usually called) is a way of creating a 3D environment which you can move through using your mouse. A VRML file contains the details of the objects in the 3D space – for instance, dimensions and 3D co-ordinates. A special program – such as a *Navigator* plug-in – interprets this data to create the 3D space that you see. To put it simply, it's a three-dimensional version of the Web – objects can act as hyperlinks in the same way that text can work on a Web page.

PRICE	£182	**ON SALE**	Now	**CONTACT**	Gomark on 0171 731 7930	**WEB SITE**	http://www.gomark.com
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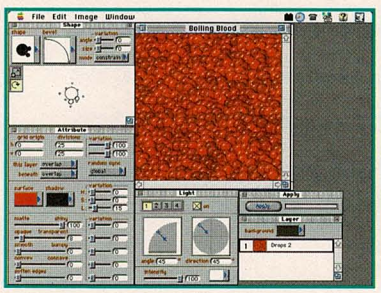
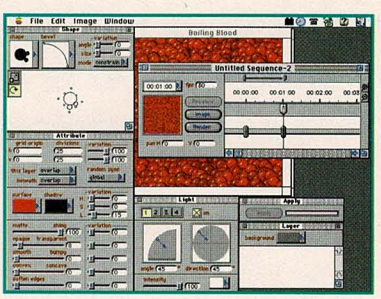
Colours: 256 • **Extras:** CD-ROM Drive							

Specular 3D Web Workshop

Designing your own Web site is no mean feat. This new bundle from Specular combines two packages: one for creating background textures, the other for creating 3D logo animations.



TextureScape gives you control over practically every aspect of your texture, but beware: complex textures mean large files.



More interestingly still, *TextureScape* can also create animations from textures using a rather nice keyframe system.

Billed as "the high impact Web page design studio," *Specular 3D Web Workshop* is actually composed of two programs and a few odd bits. The two programs are *LogoMotion* (a 3D logo design & animation program) and *TextureScape* (which can create background textures for Web pages and other uses). The other bits include a selection of ready-made textures and animated GIFs as well as a selection of ready-made examples for both programs. You can also buy another version of *Specular 3D Web Workshop*, which also contains *PageMill* – but this will cost you about an extra £100.

ON THE CD

Fully working save-disabled version

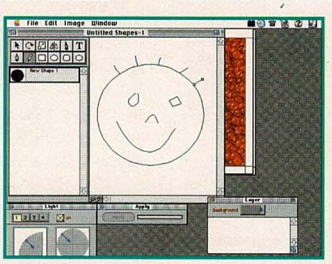
LogoMotion is pretty easy to use – this example only took a few minutes, and looks quite impressive.

TextureScape is designed to make the process of creating background textures and the like easier. Background textures can make a Web page look interesting and different, but they can also make a page look completely hideous – use them with discretion.

The textures are generated from a basic shape – either from the library of shapes provided with the program, or a new one drawn by you. Various parameters (such as the colour, bevelling and translucency) of the shape can also be set up. The shape (which is stored as a PostScript file) is then used to generate the image at your required resolution. If an image is used as a background on a Web site, it has to be tiled – so the edges must match to form a whole without obvious joins. Usefully, *TextureScape* does this for you automatically.

You can also use multiple layers of shapes (in a similar way to layers in a paint program such as *Photoshop*), with the different layers having varying levels of transparency and other qualities. Using this, it's possible to build up quite complex – or distinctly weird – images.

The program can be used to build up animations from the textures created using a simple but powerful keyframe system. Although you could use this on Web pages, you should do so with caution. This is because files tend to be large, and thus take a while to download. Besides, the program can't save out GIF files, animated or otherwise, and you can't use QuickTime movies as background images.



Creating new shapes is very simple, and just like drawing on a vector-based paint program. I call this one "Self Portrait (bad hair day)".

LogoMotion is a program for creating 3D logo animations (in case you hadn't guessed). You know, the sort of thing you see at the end of cheap American TV programs where "In association with Bill Bow Productions" appears. As such, it's pretty good – you can create a (very) simple animation in this style within a few minutes of loading the program, thanks to the excellent tutorials in the manual. You have full control over the appearance of the objects, and there are a variety of quite nicely executed examples built into the program – for example, a rocket that flies into the screen and explodes, and a pen that writes and having done so, moves on.

However, *Specular 3D Web Workshop* is by no means going to replace proper 3D rendering programs such as Gomark's *Sculpt 3D*. It does give you a pretty good level of control over the appearance and animation of the objects, but it's still nowhere near the level that a more sophisticated program gives you. There are a few nice touches, though, such as the ability to import EPS files and then use these as the basis of objects.

On the whole, *Specular 3D Web Workshop* is unsatisfying – it seems like some marketing exec with an eye to the main chance decided to just put together two existing programs and sell 'em as a Web-building package. Although both *LogoMotion* and *Texturescape* are potentially very useful and quite powerful, they do have some rather annoying quirks and serious shortcomings for this purpose – foremost among these being the lack of support for saving files out as GIFs. Of course, it is very easy to convert graphics using a program such as *GraphicConverter*, but this is hardly an adequate Web page design bundle if you have to involve *another* program in the process.

BILL BOW

Jargon Busters

GIF (Graphics Interchange File)
A graphics format used widely on the internet. The GIF format enables pictures to be heavily compressed into small files which are quick to download. The quality of a GIF image is poor, but large files of 1Mb or more can be reduced to a few kilobytes.

EPS (Encapsulated PostScript)
A file containing graphics based on mathematical vectors rather than "bitmap" information. PostScript, produced by Adobe, is the language used to describe the picture. Vector-based images can be enlarged or printed at any resolution without the image becoming pixellated.

Specular 3D Workshop

An interesting combination of packages, but neither has been fully adapted for use as a Web program. Why no GIF support?

Features	**65%**
Ease of use	**83%**
Documentation	**80%**
Value for money	**75%**

MF rating 68%

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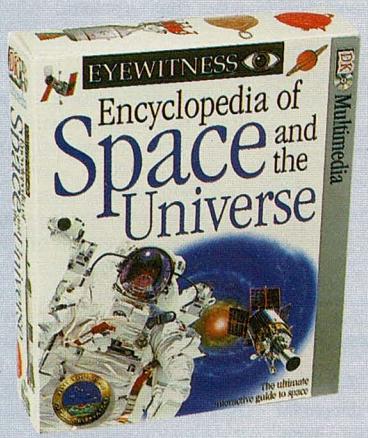

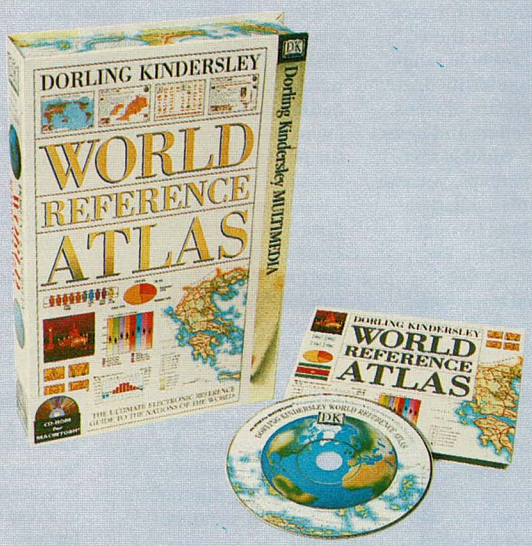

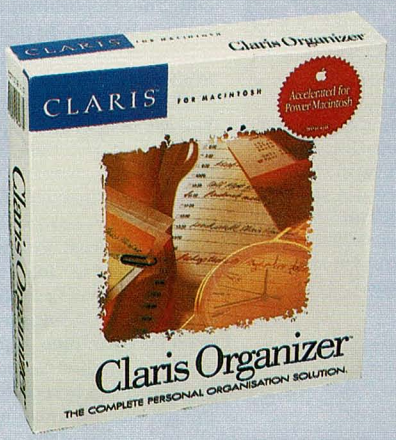

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TypeReader Professional

Is OCR software the perfect solution for archiving searchable data from mountains of hard copy? Or is it time-consuming and more trouble than it's worth?

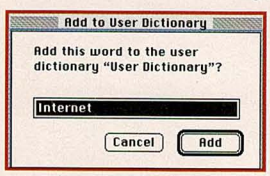
Widely read

Why don't big OCR packages like this output formatted files in Acrobat PDF (portable document format) or HTML instead of *Microsoft Word*? Both are searchable *and* can be read by almost anyone.

Optical Character Recognition (OCR) software uses mathematical algorithms to translate characters on a printed page into a text file you can edit. These algorithms are complicated because text can be printed in thousands of different fonts, a whole range of sizes *and* bold, italic, underlined, etc.

The advantages, though, are obvious. You can scan in articles, letters and news stories, and store them as editable text-files. More importantly, perhaps, you can build up searchable records using database software – try searching through 1,000 typed legal documents for everything relating to "John Smith Esq."

For OCR, you first need a scanner, then some OCR software – and then you need plenty of time. A program like *TypeReader Professional* can do an extremely impressive job of recognising plain text, though logically enough the better the quality of the scan the better its chances of getting it right – a murky fax, or an original printed in black ink on red paper, will inevitably give you an indistinct scan that even a human being would have trouble deciphering.

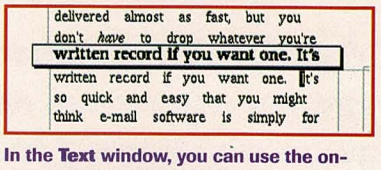


Your text is passed through a spellchecker while it's being "recognised", and you can add suspect words to your user dictionary.

Beyond that, complex layouts – text in two or more columns, or tabulated data – can be a problem. The software has to decide whether to "read" the text from top to bottom, a column at a time, or from left to right across the page and then down – and that's what takes the time. When you buy comparatively expensive OCR software like *TypeReader Pro*, you're paying partly for increased accuracy and partly for its ability to work out how to handle complex layouts.

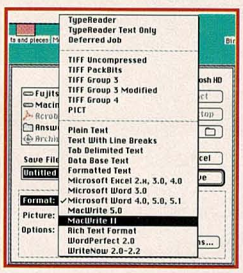
Given its professional aspirations, we tested *TypeReader* on a page from MACFORMAT. The page contained three columns, margin notes and a boxout. Set to automatic, *TypeReader* did a pretty good job overall, but didn't manage to separate the boxout at the bottom of the page from the text around it.

Fortunately, this type of error is easy to fix using *TypeReader's* **Image** and **Text** windows. The **Image** window shows how it has broken up the text on the page into "blocks" and how it's linked these, while the **Text** window enables you to edit the text itself. You sort out the flow of the text in the **Image** window, then correct recognition mistakes in the **Text** window.


delivered almost as fast, but you don't have to drop whatever you're written record if you want one. It's so quick and easy that you might think e-mail software is simply for

In the Text window, you can use the on-screen verifier to check suspect text against your original scanned image.

***TypeReader Pro's* main functions can be accessed from this floating palette.**



You can save a document in several formats – even in a way that mirrors the layout of the original, in *Microsoft Word* format.

How smart?

TypeReader Pro didn't make many recognition mistakes, performing very well in this respect. What makes editing easier still is that you can use the **[tab]** key to jump from one suspect word to the next. Each time you jump, *TypeReader* will display the appropriate section of the source image alongside, so you can see how the original looked without having to hunt for it.

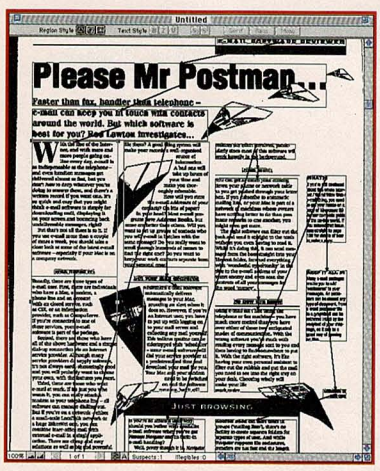
The text flow of our test document needed some fairly major work though – and it's this phase that eats into the time you thought you'd saved by not having to retype the whole lot. In the **Type** window you can move, resize, add and delete "locate regions" (text-block outlines) and their links, in order to make the text flow properly.

TypeReader's final trick is that it can both output files as plain text and also lay them out in the same design as the original. This sounds wonderful in theory, but it's rather more limited in practice. Like rival product *TextBridge Pro* (reviewed in MACFORMAT 41), *TypeReader Pro* only outputs "WYSIWYG" ("what you see is what you get") files in *Microsoft Word* format. But it can also output other formats, including *Excel* files, which are useful if you have to scan a lot of information like price lists or other tabulated data.

The comparison between *TypeReader Pro* and *TextBridge Pro* is an interesting one. They cost about the same, and their recognition and editing tools are similar too. On balance, though, we prefer *TypeReader Pro*, for both its recognition accuracy and its useful editing facilities, but it is a pity that it doesn't export WYSIWYG files in any format more recent than *Word 5.1* and supports *Excel* only up to version 4.0.

OCR software like this is very clever, but its limitations need to be understood. You can't throw sheet after sheet of paper at it and expect perfect translation. The less crisp the original to be scanned, and the more complex the layout you're expecting it to deal with, the more work you're likely to have to do to get it recognised properly. *TypeReader's* editing and correction features are exemplary, but there does come a point where you can start spending more time on the job than if you'd just got a copy-typist to do it all from scratch.

ROD LAWTON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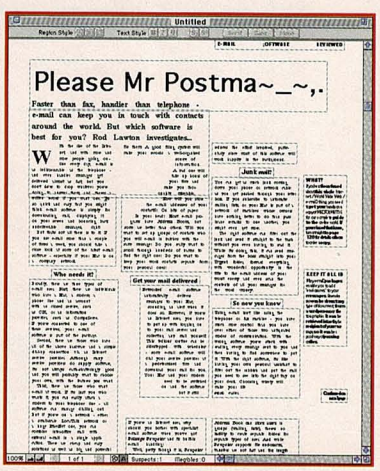
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Once a document's been "recognised", you can switch between the Image and Text window views, in order to correct both recognition and text-flow mistakes. Neat.

TypeReader Pro

Impressively accurate and effective to use, but like any OCR software it sometimes needs rather more help than you imagine.

Features	**90%**
Ease of use	**86%**
Documentation	**74%**
Value for money	**65%**

MF rating 80%

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Turn it up

There's always more you can do to your digital audio, and you gain extra flexibility if you use plug-ins. Ian Waugh checks out dynamics processing and takes a look at some handy utilities.

The story so far... In the dark and murky world of digital audio, no one can hear you scream – but they can hear the results of pitch-shifting, time-stretching, compression and EQ. There are 1,001 ways in which you can torture a digital audio recording, and we'll be looking at many of them in this three part audio processing series.

Audio processing software, like the range of programs we're looking at, helps you create top-quality sound for music recording or adding to a multimedia package. For example, you might use a utility to "de-ess" a recording, removing the intense hissing you hear when a person's mouth is too close to the microphone while recording speech, or prevent a recording getting too loud while keeping the atmospheric contrast of loudness followed by quiet.

Last issue we considered what you'll need to get started in digital audio processing and took a closer look at the common effects of equalisation (or EQ), spatialisation and reverb. This issue, we take a look at the world of dynamics processing, and then we check out one of the most useful collections of digital audio utilities ever assembled anywhere under one roof. Many of the applications we look at this issue come in the form of plug-ins. If you want to know more about the finer details of plug-ins, then check out MACFORMAT 43 (turn to page 128 if you missed it). To refresh your memory, meanwhile, here's a quick recap of the important bits.

Most processing utilities come as plug-ins. add-on modules which typically work with one or more out of three top-selling applications: *Digidesign's Pro Tools* (which uses the Time Division Multiplexing professional-level system), *Sound Designer II (SDII)* and *Adobe Premiere*. They install inside the parent program's folder and can be called from the main program's menu, integrating with it almost seamlessly.

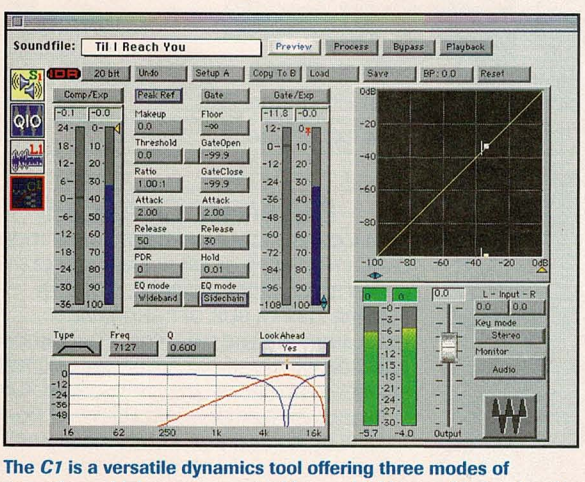
You can buy some programs as more conventional stand-alone software which does not integrate into any host. These process audio on its own and save it to disk. The major advantage of stand-alone software is that the processed files can be imported into virtually any digital audio software. The advantage of the plug-in is simply that it can work so well within its host environment.

Dynamics processing

Dynamics processing covers a wide, almost vast, range of functions. You can use compression, for example, to even out the volume of a signal by raising the level of low-volume signals and reducing the level of high-volume signals. A limiter takes this to the extreme by severely reducing high output levels to prevent the signal overloading an output.

As you'd expect from the name, expansion is the direct opposite of compression and increases the dynamic range of a signal. A noise gate only lets through signals where the volume is above a certain level. It's commonly used to cut out the background noise that's generated by some instruments, like electric guitars plugged into amplifiers, even when they aren't being played.

These are the main dynamic processing functions although the whole process can be used in several other ways, too.



The *C1* is a versatile dynamics tool offering three modes of operation, which you can control from a highly-graphic front end.

C1 Compressor/Gate

TDM plug-in, £649
***SDII* or *Premiere* plug-in, £499**
Natural Audio

C1 has three modes. The **Compressor/Expander** can operate as a high-level compressor, a gentle high-level expander or as a mid-level compressor which can be tuned to any signal level. It also has a **Cancellation Dynamics** mode for removing very high level sounds.

The **Gate/Expander** can operate as a full-featured gate or expander (of course) and it can be used to "compress up" lower-level signals. The **Filter/EQ** mode has a range of filter options, including a **Bandsplit** mode which enables either the compression or gating of a specific audio frequency.

There are lots of options on this screen, although the developer Waves' familiar graphic interface does make operation reasonably simple. Changing the settings changes the graphics display, but you can't alter the settings on the graph directly as you can with *MDT*, which we look at below – something which you might prefer to do.

You can load and save settings, and the pack contains around 40 presets, including basic dynamic settings and ready-made compressors, noise reducers, de-essers and enhancers.

Although it's expensive (the *SDII* version being less so), *C1* offers a wide range of control over dynamic processing functions and, unless you have particularly demanding requirements, it could be the only dynamics processor you ever need.

MACFORMAT Classic

C1 Compressor/Gate
MF rating 91%

MDT

TDM plug-in, £516
Stand-alone, £430
Unity Audio

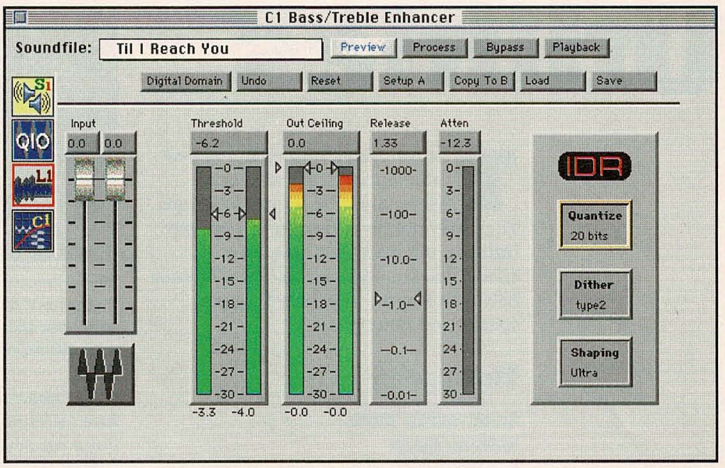
The *Multiband Dynamics Tool* offers a versatile range of dynamics processing and can be configured as a compressor, limiter, expander or any combination thereof. Operation revolves around an

easy-to-use graphic interface and, unlike the *C1*, for example, you can control it by dragging points around on the graphic display. **Attack, Release** and **Gain** settings offer you a finer degree of control over the functions.

The **Filter** section gives you control over different areas of the signal's frequency range to help create effects such as a de-esser and an enhancer. It can also be used to create dynamic EQs which change the amount of EQ according to the input level. Interesting.

The manual includes an excellent tutorial which will take you about an hour-and-a-half to work through, and there are almost 30 presets to get you up and running.

MDT is an excellent program – it's a touch on the expensive side but versatile and easy to use.



The unusual *L1 Ultramaximiser* plug-in makes your audio files sound sharper, brighter and more detailed.

MDT

MF rating 86%

L1 Ultramaximizer

TDM plug-in, £599
***SDII* or *Premiere* plug-in, £459**
Natural Audio

Simply put – if it is possible to describe this plug-in's function in simple terms – the *L1* maximises the level of the digital signal and maximises the resolution of the final file. The resolution contributes to the general sharpness of a sound file – 16-bit sound is roughly CD quality. *L1's* maker claims it increases the perceived quality of a file by three bits to give a normal CD-quality file of 16 bits a perceived resolution of 19 bits, and a lower grade multimedia file of eight bits a resolution of 11 bits.

A normal maximiser will find the loudest part of the signal, then increase the total signal level until the loudest part is as loud as it can go without distorting. The *L1* maximises the signal level by looking ahead and reshaping the signal peaks so they don't distort. It also increases the other parts of the signal past the level a normal maximiser would go. It works, too!

It improves the perceived bit resolution by noise shaping and dithering. When you reduce the number of bits in a sound, you add distortion and you lose definition and therefore quality. Dithering actually adds noise to the signal to mask the distortion, but that noise is applied in such a way that it falls into the areas in which your ears are least sensitive, so that it's less noticeable.

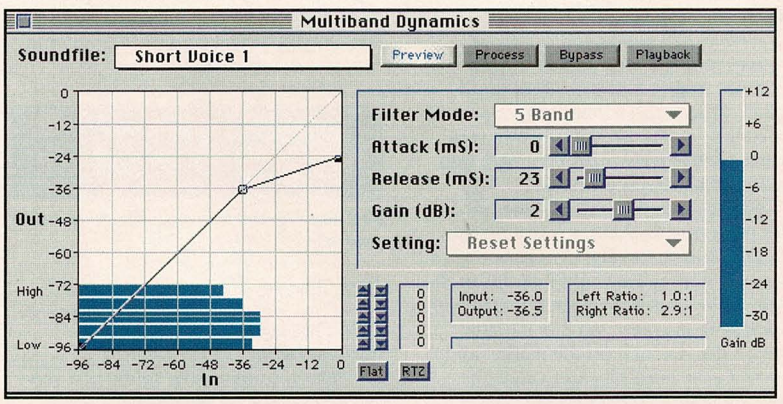
That's as technical as we really want to get. Suffice it to say that the program – and, indeed, all of Waves' plug-ins – uses a proprietary noise-shaping dither system called IDR (Increased Digital Resolution). This preserves and increases the resolution of the audio it works with.

The controls are remarkably simple, with the majority of work done using three sliders for maximising the volume and three buttons for setting the dithering and noise shaping options.

The *L1* is a clever piece of software and, make no mistake, an ideal plug-in to put last in your processing chain to maximise the level of a recording. It's not cheap – nothing in the brave new world of digital audio is – but it does a pretty good job.

L1 Ultramaximiser

MF rating 82%



Developed by AnTares, *Multiband Dynamics Tool* (*MDT*) offers you a good range of dynamics effects, controlled using an easy-to-use point-and-click interface.

Jargon Busters

- **Comb filter:** this delays the output of the sound signal to produce a phasing or "flanging" effect.
- **Compressor:** this reduces a signal's dynamic range. It's a little like an automatic fader: when the volume of the music rises, the compressor fades the level down, and when the volume drops, it brings it back up. It's very useful when adding sounds with a wide dynamic range – such as vocals – into a mix with a relatively even volume level. Without a compressor, the vocals may get lost in some parts of the mix and drown out other parts. It's also useful for evening out the dynamic range of a complete piece before you master it.
- **Expander:** the opposite of a compressor – it increases the dynamic range of a signal. It can be used to reduce background noise and breath sounds.
- **Filters:** there are five main types of filter. Low Pass lets through low frequencies and High Pass lets through high frequencies. Low Shelf and High Shelf filters are often used as tone controls, raising or lowering a whole region of the spectrum. A High Shelf filter, for example, cuts and boosts the higher frequencies. Peak/Notch filters shape a selected area of the sound spectrum, enabling you to home in on specific frequencies, a little like a Parametric EQ.
- **Graphic EQ:** an equaliser with a number of cut and boost controls, each of which affects a specific frequency. These are often presented on your screen as sliders arranged in a line, so the pattern of the sliders shows the frequency response of the equaliser.
- **MIDI:** Musical Instrument Digital Interface. The standard system for connecting music equipment to your Mac, and a music file format, including instrument descriptions, that most programs can play back.
- **Parametric EQ:** a type of equalisation which enables you to select a frequency and cut or boost the spectrum around it.
- **Pitch-shifting:** changing the pitch of a sound without affecting its duration.
- **Time-stretching:** changing the duration of a sound without affecting its pitch.

Utilities

The following miscellany of programs performs a variety of useful and interesting functions. They may not be at the top of your list initially, but once you have a core of effects and process packages under your belt, you should look here for more specialised functions.

TimeBandit

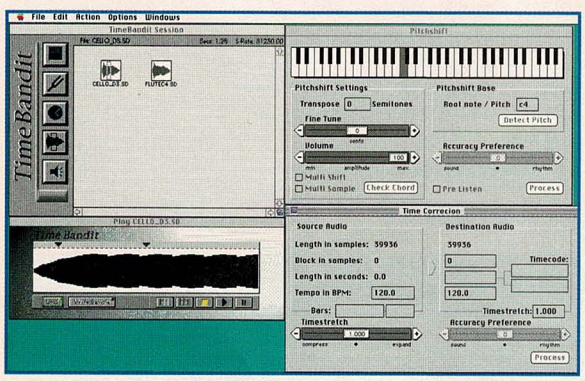
Stand-alone, £329
Harman Audio

Recently updated to version 2, *TimeBandit* performs two of the most popular digital audio effects – time-stretching and pitch-shifting. The interface is quite musician-oriented. You can specify pitch changes in semitones or by clicking on an on-screen keyboard. It offers up to 25% varispeed without pitch-shift in **Normal** mode and up to ten times varispeed in **Effect** mode.

TimeBandit can pitch-shift up to four octaves in one go, although it's only to be expected that this can have a severe effect on the quality of your sound. It can also create harmonies, by adding additional pitches to a single voice, for example. It can create small pitch-shifts to produce chorus effects and create several samples of different pitches from a single sample.

There are four processing modes ranging from **Faster Than Real-time** to **High Quality** and, handily, the program also supports batch processing. The results are quite excellent.

TimeBandit is currently being bundled with *Cubase Audio XT*, which makes *Cubase Audio* rather good value for money. For a full review of *Cubase*, see MACFORMAT 39.



TimeBandit has an excellent range of time-stretch and pitch-shift functions and works in a very musician-friendly way.

Contacts

Name	Telephone	Fax
Adobe Shop	0131 451 6888	0131 451 6999
APB Tools	00 49 30 262 7354	00 49 30 391 3507
Digidesign	01753 653322	01753 654999
Harman Audio	0181 207 5050	0181 207 4572
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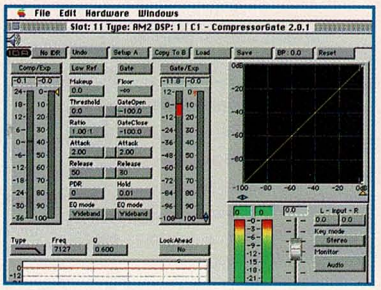

If you have some Waves plug-ins, you can turn your Mac into an effects-processor with *WaveShell-RT*.

Although *TimeBandit* does only perform two functions, it performs them very well. Other products offer time-stretching and additional effects besides, but few have quite this range of settings. If time-stretching and pitch-shifting are an important part of your digital audio processing, *TimeBandit* must be near the top of your shopping list.

TimeBandit

MF rating 87%

WaveShell-RT

Stand-alone, £79
Natural Audio

WaveShell-RT enables you to run all Waves plug-ins (also available from Natural Audio) as if they were stand-alone programs, enabling you to process incoming audio through them in real-time. It effectively turns your Mac into an external effects processor.

You can use the system's internal 24-bit processing to do things like DAT-to-DAT transfers, mixing, CD mastering and so on. Chances are you'll find this useful, but could it not have been bundled with each plug-in when you buy it? They aren't the cheapest on the market and it would give 'em a bit extra value for money. Still, in the world of plug-ins, an extra £79 isn't going to break the bank.

WaveShell-RT

MF rating 74%

DPP-1

TDM plug-in, £445.33
Digidesign

High-quality 24-bit pitch change and delay-processing software. *DPP-1* can work in both mono and stereo modes and supplies up to four octaves of stereo pitch transposition on either single or multiple channels.

DeClicker

TDM plug-in, £799
Harman Audio

As you'll have deduced from its title, this plug-in removes clicks from recordings.

DeClicker gets rid of de little clicks which spoil de recording.

Its most obvious use is the removal of clicks when making a recording from good old vinyl, but it can also be used to remove digital clicks and static from DAT masters, and it can also soften digital distortion and even mask tape drop-outs, providing they aren't too long.

DINR

TDM plug-in, £891.83
Stand-alone, £891.83
Digidesign

Digidesign Intelligent Noise Reduction can reduce two types of noise. For tape hiss, which can affect a wide range of frequeneices, it analyses the noise and removes it from the recording. To remove narrower pitched sounds such as hum, *DINR* uses a variety of specialised digital filters. You can adjust the parameters on the fly and a **Bypass** button enables you to make quick "before" and "after" comparisons.

Red Valve-It puts a virtual valve amp inside your Mac.

Red Valve-It

TDM plug-in, £499
Harman Audio

Red Valve-It emulates the sound of a valve amplifier – or a range of valve amps, to be precise. It includes a preamp with different tube-sound characteristics and speaker emulations, capable of producing sounds from jazz to blues and distorted rock settings. The software has three sections: the drive section, a three-band EQ and a gate with automatic calibration. Two different tube models are implemented: the first in the input stage and the second in the drive section, which helps produce a natural, rich sound.

Tun-A

TDM plug-in, £119
Harman Audio

A guitar and chromatic tuner for tuning analogue synths, guitars and other instruments without leaving the digital audio environment. It supports a range of tuning schemes from "pure" to "exotic" and can also generate tuning tones. It's as easy as that. **MF**

fetch!

i-wave the paperless magazine

What they said about issue 1

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Independent on Sunday	"...[a] captivating and convincing model of how a publication can make good on the promise of multimedia"
MacFormat	"A stylish and interactive way of discovering new ideas in popular culture"
CD-Rom Today	"Meet the future..."
The Daily Telegraph	"...a digital divertimento of interactive video reviews, music, animation and software"
Edge	"The disk is beautifully presented and crammed with interesting material..."

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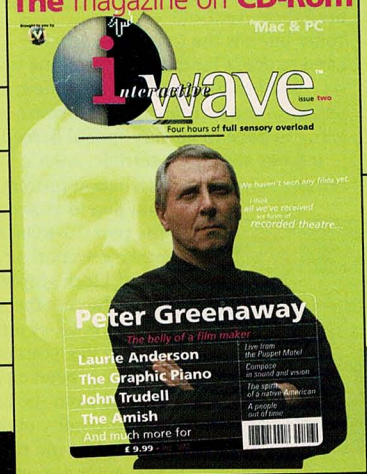

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MAC	**Processor:** 68040 • **RAM:** 4Mb	**POWERMAC**	**Processor:** any • **RAM:** 4Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256.• **Extras:** CD-ROM drive		

Tomy ComfyKeyboard

Is QWERTY about to become a thing of the past with this new keyboard for toddlers? Mike Goldsmith and Alex Summersby find out more.

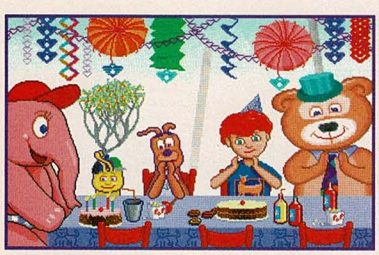
Under-fives are canny little creatures. They quickly grasp that pounding your keyboard causes interesting things to happen – letters may appear, or shapes or colours, and almost certainly quacks, eeps and other fun noises. Probably less enjoyable noises from jumpy parents too – even if you sit 'em on your lap and guide their every move, it's only a matter of time till they accidentally hit a control key...

How about a keyboard made just for them, like the Tomy ComfyKeyboard? Virtually identical to a children's activity table, it is everything the conscientious parent looks for in a toy, with bright primary colours and "thumpable" buttons for your one-year-old, plus visually stimulating symbols and a toy phone for your inquisitive two-year-old – and it can even take a beating from an over-tired three-year-old.

Meet the gang, see the sights and, for the millionth time, sing that intro song.

Tomy intends the ComfyLand package for children from one to six – an absolute eon in development terms, so the accompanying software is going to have to be very special indeed.

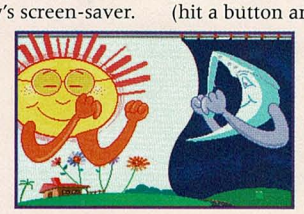
It looks absolutely terrible. After a refreshingly simple installation process, you pop in either of the two CD-ROMs and a selection of jerky, block graphics judder across the screen. It looks terrifyingly like your old ZX81 has been exhumed from the loft.



Mind your manners! It's Feely's birthday party and his eyes are firmly on that cake.

The crudity of the animation and the Stylophone-quality sound are astounding, given the cartoon-quality graphics the Mac can produce. But, surprisingly, the broad-brush simplicity of it all actually seemed *more* appealing to our playtesters, from an easily-bored two-year-old named Jennifer, to a rather demanding two-and-a-half-year-old called Jamie, to Alexander, nearly four, an experienced sophisticate whose current favourite sport is naming geometric shapes as they are created by Daddy's screen-saver.

Buttons were pummelled, that far-too-short phone cord was used for bungee-jumping, and chocolate was introduced where it shouldn't have been. However, not only was the ComfyKeyboard unbreakable, *no* amount of thumping, whacking and pressing-all-the-buttons-at-the-same-time would crash the *ComfyLand Movie*. So far, so good...



Thump a button and you can switch quickly between day and night – but not without a fight.

But what of the actual software? After the opening song and introduction, you can choose from two separate stories. Both discs feature the same cast of characters, and their antics are perfect for both intended age groups (12 to 24 months in one case; two to six year olds in the other). Naturally, the younger kids spent their first time with the ComfyKeyboard pressing buttons randomly – the "Rain" button produced rain, the musical instruments played tunes, and so on. Fun enough.

But, as with all children's toys, it's interaction that makes the experience immeasurably more fulfiling. Kids can follow storylines to the letter, thumping buttons whenever a ComfyLand character asks them to. But once they've tasted the power they wield, older and younger kids alike get bored waiting to be asked. The little ones kept re-playing favourite effects; the older ones grew impatient to try something new and discovered that you can interrupt the story to make a phone call, for example – just pick up the phone and press a character's button. Parents might get frustrated that kids aren't letting the story develop in linear fashion, but after each excursion it resumes without a hitch – and, much more importantly, the kids are in control, not being controlled by the software.

Storylines were followed, then abandoned, and logic was defied ("More rain, Jamie? Are you sure?"). The intensely annoying opening song was returned to at all-too-regular intervals, but fun was had and something was learnt. Not just a couple of new animals and some new phrases, but basics of cause-and-effect (hit a button and something happens – the story *doesn't* continue regardless, no matter how much parents might hope it would). Just as importantly, it kept a little boy and girl amused for the best part of an afternoon, and Alexander is still asking for another go.

Drawbacks? Your child will learn that a computer can be fun, but it can be fun without a ComfyKeyboard. £70 could buy you a couple of much-better-animated interactive storybooks and a second-hand keyboard, and then you wouldn't be tied to buying ComfyLand-only releases. However, no other software seems so well geared to the requirements of children this young. ComfyLand will entertain, educate and enrapture your child – the younger the better. You might crave top-quality graphics, but the robust keyboard and its software add up to an ideal educational, interactive toddler's toy. **MF**

Win!

You've read the review, now win the keyboard! We've got ten ComfyKeyboard packages, worth £69.99 each, up for grabs on page 130. Just get your toddler to answer our simple questions and then you could have hours of fun once you've put them to bed.

The characters

Meet your child's new playmates:
Comfy – the kind-hearted child.
Jumpy – the mischievous dog.
Buddy – the inquisitive bear.
Snaily – the diligent snail.
Feely – the absent-minded elephant.

Tomy ComfyKeyboard

A fun package for toddlers, with a robust keyboard and entertaining stories.

MF rating 77%

PRICE	£29.95	ON SALE	Now	CONTACT	Tomy Careline on 01703 872267	WEB SITE	http://www.dirus.com/TOMY/welcome.html
MAC	**Processor:** 68040 • **RAM:** 4Mb	POWERMAC	**Processor:** any • **RAM:** 4Mb	REQUIRES	**System:** 7.1 or later • **Screen:** 640 x 480 •		
Colours: 256 • **Extras:** CD-ROM drive • Tomy ComfyKeyboard							

The Missing Bone

Jumpy's bone has gone walkies – can you help him to find it?

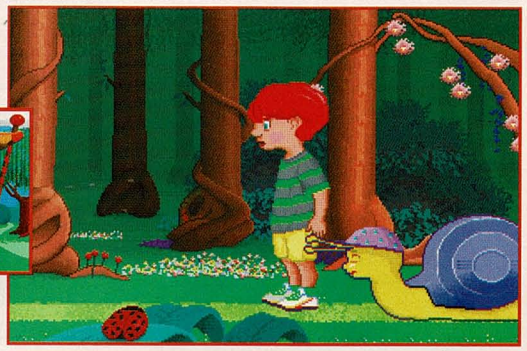
Ears flapping and tongue lolling, Jumpy is not a happy puppy – his bone has gone missing. Thankfully, ComfyLand is full of kind souls. After a quick phone call to any of your ComfyLand friends – Feely the elephant, Buddy the bear or the detective duo of Comfy and Snaily – your child can help to find it, and in the process learn all about colours and sounds.

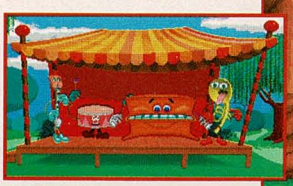
The first in Tomy's Colourful Adventures range, *The Missing Bone* is designed with the Colour keys in mind – ideal for the lower end of the one to six-year old market. Choose Buddy and you can colour his overalls. When Feely decides to paint Jumpy a picture, you can colour the objects – a strawberry, the sun, whatever you fancy. Visit the forest with Comfy and Snaily and, with the help of some brightly coloured birds, you can search for clues.

Of course, each story ends with Jumpy happily reunited with his bone, but along the way you can deviate from the story, play with the weather buttons or just solve the musical riddles. Hours of fun! **MF**

Use the colour buttons and you can give Buddy a spectacular all-over paint-job.

Choose Comfy and Snaily and take a trip to the woods. A big surprise is inevitably in store.





Hit the **Trumpet** button and see your favourite instrument rapping...

The Missing Bone

An absorbing and enlightening combination of storybook and paint package, if rather easily exhaustible for all but the very young.

MF rating 71%

PRICE	£29.95	ON SALE	Now	CONTACT	Tomy Careline on 01703 872267	WEB SITE	http://www.dirus.com/TOMY/welcome.html
MAC	**Processor:** 68040 • **RAM:** 4Mb	POWERMAC	**Processor:** any • **RAM:** 4Mb	REQUIRES	**System:** 7.1 or later • **Screen:** 640 x 480 •		
Colours: 256 • **Extras:** CD-ROM drive • Tomy ComfyKeyboard							

Playground of Friends

Comfy's got an empty playground – but nobody to play with...

It's a nice day, the sun is shining, but Comfy's got a problem. The playground is empty, he can go on the swings and slides all he likes, but something is missing...

Playground of Friends is another of Tomy's Colourful Adventures, but this one is aimed more at the upper end of the ComfyKeyboard's rather broad age range. It takes our hero on a tour of ComfyLand, visiting all his chums on the way to discovering just what his day is lacking – plus there's every chance he'll have a bit of fun on the way.

Playground is a far deeper title than *The Missing Bone*, and augurs well for the Tomy range: your child will be both stimulated and challenged.

All the buttons on the ComfyKeyboard are utilised here – Jumpy needs the instruments to scare the birds away from his tomato patch; the colour keys determine which picture Feely draws with his magic pencil; and so on – and each has repercussions beyond simple problem-solving. Children can explore and experiment with the consequences of their decisions, not just play with colouring the strawberries blue and so forth.

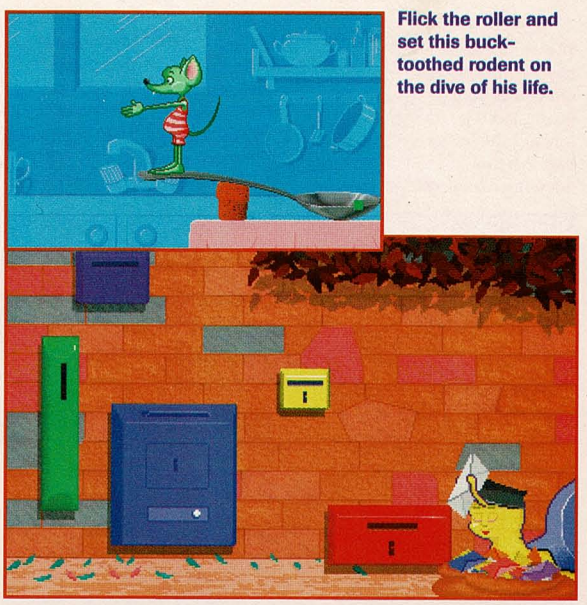
Once children have completed these slightly more demanding puzzles, they should also realise just what Comfy's been missing all day long – his friends.

A park all of his very own. Unfortunately, playing on the see-saw all on his own isn't much fun for a solo-Comfy.

Playground of Friends

A more challenging game for the slightly older child, with much to explore and enjoy.

MF rating 77%



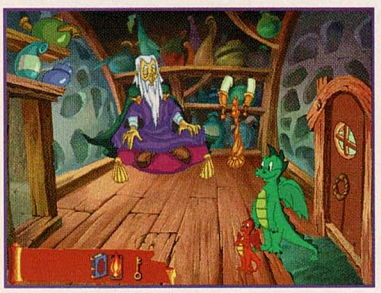
Flick the roller and set this buck-toothed rodent on the dive of his life.

Hit the Colour keys and help Snaily complete his task of delivering the mail to all the creatures in the ComfyLand zoo.

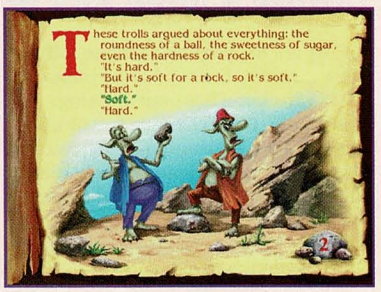
PRICE	£19.99	ON SALE	Mid-November	CONTACT	Brøderbund on 01429 273029	WEB SITE	http://www.broderbund.com
MAC	Processor: 68040 (33MHz) • RAM: 8Mb	POWERMAC	Processor: any • RAM: 8Mb	REQUIRES	System: 7.1 • Screen: 640 x 480 • Colours: 256		

Darby the Dragon

It's not every day that a dragon-prince shrinks his big sister to the size of a newt. In the first in a new range from Brøderbund, you flap your scaly wings, puff a smoke ring and save the day.



Solwyn needs a few things before Sparkle can return to her normal size.


These trolls argued about everything: the roundness of a ball, the sweetness of sugar, even the hardness of a rock.
"It's hard."
"But it's soft for a rock, so it's soft."
"Hard."
"Soft."
"Hard."

It's "The Tale of the Two Trolls", essential reading from the castle library.

Dragons, if zoology books are to be believed, don't exist. Okay, so there are a few evolutionary throwbacks skulking around, but actual dragons? Naaah. Yet, ask a five year-old about these mythological beasts and logic falls blissfully apart. Whether it's St George's sparring partner or that stalwart of kiddies' radio, Puff (you know, the magic one), dragons have been a staple of children's dreams and nightmares since Merlin knows when – and it's likely to stay that way.

Thus, it was only a matter of time before our scaly pals flew down from the kid's bookshelves to your Mac, courtesy of Brøderbund's new StoryQuest series. The premise is simple: add adventure-style gameplay to the familiar interactive storybook genre. *Darby the Dragon* is the enchanting tale of a young dragon prince with a glint in his Disneyesque-eye. It's a mischievous glint that gains him a magic wand but, via the inevitable misunderstanding, also manages to shrink his big sister Sparkle to the size of – well, a smaller dragon. Hardly becoming of a princess. It's thus your job to guide Darby and Sparkle around the castle grounds and beyond, until you find the objects that will enable Solwyn (the local levitating wizard) to return Sparkle to her normal dragon-like size.

Shrunk your sister and need help quick? You'll want magic water, a polka-dotted pineapple and a swamp oyster.

Darby the Dragon will demand more of your child than its sister release *Gregory and the Hot Air Balloon* (see facing page) – and, with "edutainment" CD-ROMs constantly underestimating children's abilities, that's an exceptional move. *Darby* still relies on the interactive storybook format – if it looks like it'll move, click on it and it probably will – but the gentle introduction of the adventure format draws your child into the story rather than simply embellishing it. Need to scale that mountain? You won't do it without help from the trolls. To get this, you have to grease their palms with berries. Need some berries? Then you'll have to find the fairies...

It's the wandering minstrels and their unique rendition of "I've Got A Brand New Combine Harvester". Pay them nothing!

Darby the Dragon is a complex challenge that still manages to look and sound impressive: caterpillars croon and minstrels are always on hand with a song. But the inhabitants of Dragondale (where the action is set) have enough character and, more importantly, purpose to make *Darby* an essential purchase. Whether you're visiting Maggie's Bakery for fairy bread or just clicking on a helpful image, characters and scenarios stress logic and memory to solve your particular problem. Add on a few more playful puzzles (for example, design your own mask at the mask stall) and three read-along storybooks – normally enough to warrant a CD-ROM title on their own – and *Darby The Dragon* is swiftly on the way to putting the "edu" back into "edutainment".

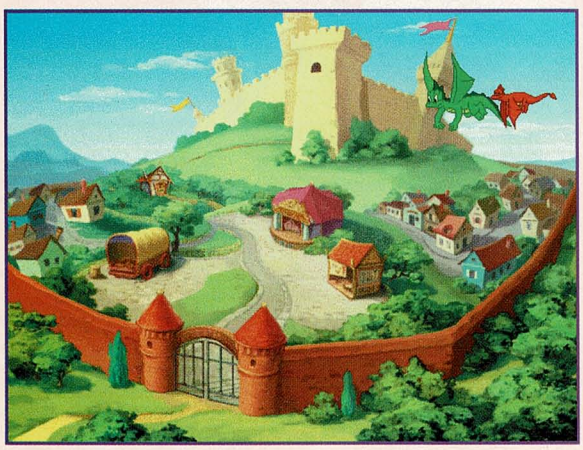
And once trolls are bartered with and swamp oysters are caught? Well, given the storybook-genre Brøderbund has virtually made its own, it shouldn't come as any surprise that Darby and Sparkle are reunited with a hug and an appropriately-sized ending. But, once those puzzles are solved, will your child bother putting *Darby The Dragon* back in the CD-ROM tray? Of course! If familiarity truly bred contempt, Walt Disney™ would've died a somewhat poorer and rather less famous man. Just as *Bambi* is rewound time and again, such will be the case with *Darby the Dragon*. Why? Animation? Gameplay? Educational value? Naaah. It has all these but, y'see, at the end of the day, all children believe in dragons...

MIKE GOLDSMITH

Click on that magic key and let Sparkle grab the gold. Who needs cash machines?

Story Time

Is *Darby the Dragon* a bit too adventurous for you? Choose from the castle library's storybooks, including "Jethro Giant & the Honeybees" and "A Tale of Dragondale" for a rivetting read.

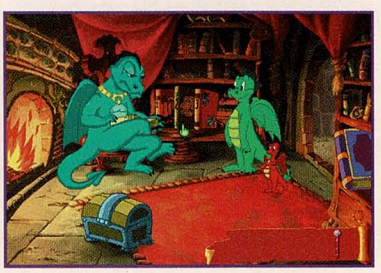


The sumptuous castle grounds will aid you in your quest, but it's beyond the gates that the real adventure begins...

Darby the Dragon

A rare and challenging adventure game, which will educate *and* captivate your kids.

MF rating 89%



Find the Dragon Spellbook or just kick your dragon heels and let Mum read you one of the three storybooks.

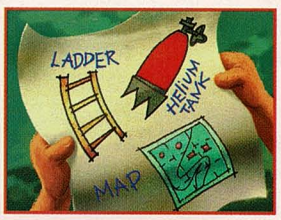
PRICE	£19.99	**ON SALE**	Mid-November	**CONTACT**	Brøderbund on 01429 273029	**WEB SITE**	http://www.broderbund.com
MAC	**Processor:** 68040 (33MHz) • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256		

Gregory and the Hot Air Balloon

A woodchuck, a newt and a wayward balloon – now there's trouble brewing if ever you heard it. But does this brand-new animated adventure live up to your expectations, or is it just a load of hot air?

Gregory might be enjoying the ride but Newt has gone a distinct shade of green. Oh, hang on a minute...

Looks like we're going to get a longer ride than we thought, Newt... Never a wiser word was uttered by a talking rodent. One minute, Gregory Chuckwood and his pet lizard Newt are enjoying a sedate float in Mr Underwood's balloon – and the next? The rope's worked loose, Gregory has unwisely pulled the plug out of their now untethered balloon, and both woodchuck and newt are sent hurtling into a world of psychic foxes, robotic frogs and cows that serve up a mean ice-cream sundae. All this and he'll probably miss his tea. Perhaps even *Neighbours*.



Your balloon's gone flat, Newt's stuck up a tree and you've got no idea how to get home. Scour the carnival for a tank of helium, a ladder and a map to ease your woes.

Doesn't sound like fun? Don't worry. This second release in Brøderbund's StoryQuest range is guaranteed to amuse and delight your four to seven year-old Mac-addict – and even teach 'em the odd thing too. You can be sure they'll be pointing and clicking until Boxing Day and beyond.

Gregory and the Hot Air Balloon is the tale of an unbearably cute groundhog and his misadventures aboard – you guessed it – a hot air balloon. As the story unfolds, so too do the actions, and the tasks your kids have to perform are easy to follow. For instance, Mr Underwood says he'll give you an "extra-long balloon ride" if you fetch his book from town. So, you head into town and visit the book shop run by Gregory's parents. Straightforward enough even for the youngest in the target age range.

But this is not just a spiced-up storybook. Once you're aboard the balloon, the adventure really begins. Acorn Hollow, the town where the action is set, is left behind as our heroes crash-land outside a carnival. Then, strutting like a furry John Travolta, Gregory must oil Ferris-wheels, pull switches and generally hunt high and low for the items required to return home (helium, a ladder and a route map). With the younger children in mind, the tasks aren't too sophisticated – remember which stallholder wanted what and take it to them – but the package as a whole most definitely is.

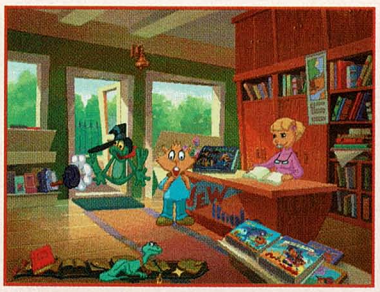
Don't bother trading banter with your big sisters. Click on the statue for a slice of history about sleepy Acorn Hollow.

Brøderbund hasn't skimped on design or depth either. This is evident in little details throughout – from the gentle ripples on the woodland stream, to Gregory's '50s dad, to the relatively imaginative humour of The Great Mentallo (the carnival mind-reader). You can always take a breather from adventuring by pulling a few daft faces in the Hall of Mirrors, play Mentallo's picture quiz or just settle down for a story by clicking on any of three storybooks in the Acorn Hollow Book Shop.

All of this may be okay for your inquisitive four-year-old but, for the more demanding seven-year-old, such animated antics might soon wear thin. Gregory isn't bold or rude, he's a wholesome goodie-two-shoes from middle America. The songs aren't the Spice Girls, they're saccharine ditties that melt the eardrums. The animation isn't "dark," like Batman, it's sub-Disney chirpiness that *Roger Rabbit* took the mick out of years ago. Of course, such sophisticated demands from the under-sevens are relatively recent, but by keeping a keener eye on the mass media, Brøderbund could have added just the bite needed to make *Gregory* more fun for all the ages advertised on the box.

So what happens at the end? Does Gregory make it back home? Well, that would be telling, but it wouldn't be letting on too much to reveal that *Gregory and the Hot Air Balloon* ends happily ever after. Let's just hope he made it in time for *Neighbours*.

MIKE GOLDSMITH



Our accident-prone froggy-friend gets one in the eye in Acorn Hollow Books. Pop-up books were never like this in my day.

Click on a floating head to decide whether you want to help Clara make ice cream sundaes. Cheap labour if you ask me...

Gregory and the Hot Air Balloon

Aimed at the younger adventurer, a well designed and idea-packed interactive story, if perhaps a bit too "cute" for older kids.

MF rating 85%

Mysts of Time

When the kids grow out of Gregory's hectic adventures, try them with the sophistication of the classic spooky questfest *Myst* – see Brøderbund's Web site for details.

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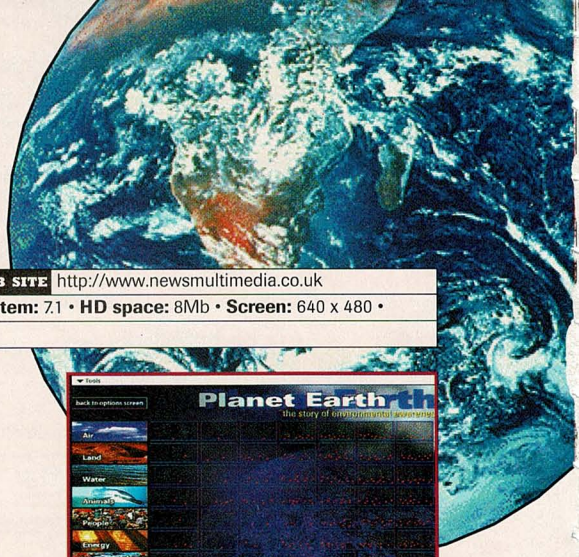

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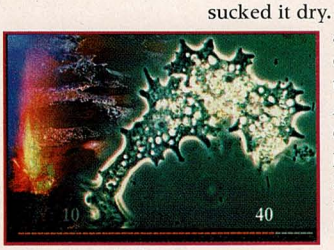
Planet Earth

Since the 1980s, the environment has become big news. Green issues are taking over the world, and this CD-ROM from The Times Perspectives range promises to tell you all you need to know...

Study by section or year. From one section, move to the next by clicking at the sides of the screen or going to the Tool bar.

Earth was doing fine until we came along. This planet has existed for approximately 46 million years and, in the mere blink of an eye, humankind has sucked it dry. Water, air, soil, plant and animal have been sullied or destroyed by us. That is the message of *Planet Earth*, which traces the chaos humanity has produced over the past 200 years, illustrated using articles from *The Times* and *The Sunday Times*.

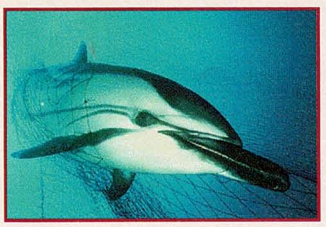


***Planet Earth* takes you through the environment from first principles – the beginning of life.**

The environmental rot set in with the Industrial Revolution. Factories belching out smoke and houses heated with coal resulted in heavily-polluted air (there were 2,000 smog-related deaths in London in 1880) and even early instances of acid rain (it was first recorded in 1851 in Manchester). Widespread poverty and disease also caused thousands of deaths, and *Planet Earth* reveals that this was only the beginning.

Today, there are vastly more people in the world – the population of England and Wales alone doubled between 1800 and 1851. Add to this the growing gas emissions from cars and factories, the dumping of waste, and the use of fertilisers on crops, and *Planet Earth* asks, "Is it too late?"

Unfortunately, finding answers within the CD is no easy task. While the contents are carefully divided into **Air, Land, Water, Animals, People, Energy, Responses** and **The Future** – each of which you can look through either by year or more generally – the information is dominated by the newspaper articles. Apart from the brief introductions to each topic, there's no spoon-feeding here.



A dolphin in a tuna net – people still aren't as worried about depletion of sea stocks through over-fishing.

The interface is quite simple and easy to operate, full of colourful images and with point-and-click instructions to guide you. There are timelines of significant events, with relevant photographs, graphs and tables.

A different kind of Adobe? People across the globe have some very conflicting ideas about waste.

The CD is easy to navigate, it looks great and you can make notes on screen as you go. But all of the articles pop up in plain text boxes, which you really need to print out to read with ease. Using newspaper articles that were written as these events happened, rather than retrospective analysis, is an excellent idea – but organising the pieces into topics and dates isn't enough.

In *Women's Rights*, also from The Times Perspectives range (turn to page 114), the focus on individuals makes the newspaper articles more exciting. Also, the use of statistics boldly emblazoned across the screen provides stimulus – something about it gets you involved. But here, apart from an excellent introduction and some brilliant photography, you quickly feel rather lost, floundering in an enormous mass of information and not having a clue where to start – even the titles of the articles aren't always particularly clear.

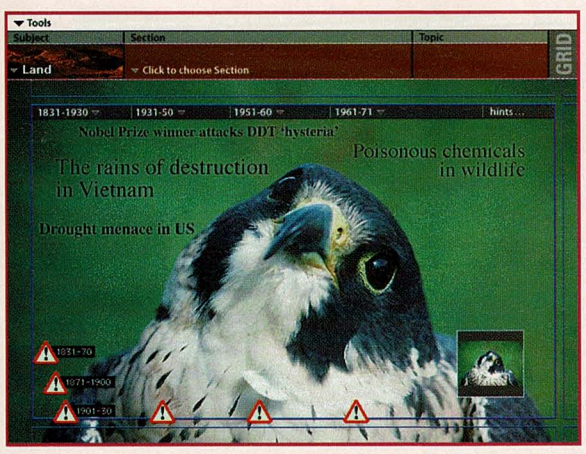
The introduction tells you that the Industrial Revolution was the beginning of our polluting the planet – but run a search on it in the main body of the disc and there's no straight historical information to be found. Too much knowledge is assumed – you might not already know what muriatic acid is, or how acid rain is formed, or why there's a hole in the ozone layer. This isn't an impartial presentation and the information doesn't claim to be from many sources, so why can't more overt guidance be provided? You feel as lost as in a reference library: there's a mountain of information on the topic you're interested in, but you're faced with having to read everything before you know what you want.

If you're already fired up over the environmental situation that the world is in, *Planet Earth* provides a stylish and interesting reference guide to the course of the global situation and the possible alternatives. It also refers to the measures taken so far and what still needs to be done to contain the damage. The package looks great and there's a lot of interesting material, but it's not the most inviting entry point to what is a complex and disturbing subject.

EVA LAUER

ON THE CD

Check out a full section in our working demo



From one of the main screens, you can explore a timeline or dip into issues such as the death of wildlife due to pesticides.

Planet Earth

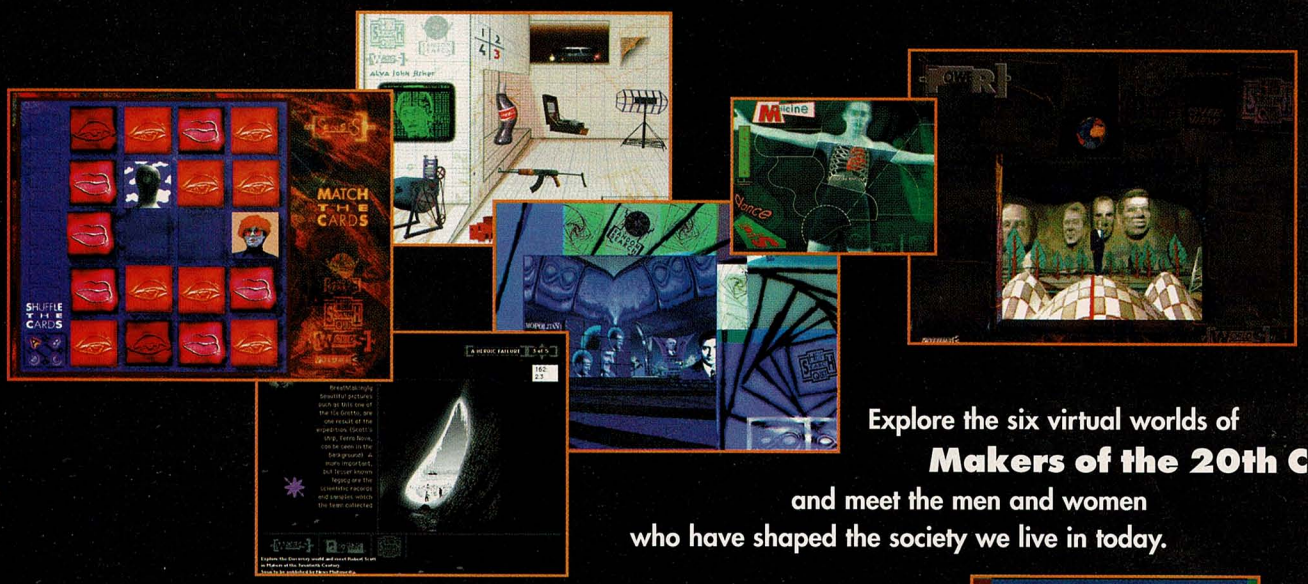
A wide-ranging and revealing look at the perilous environmental state of our planet, but hard to digest or find your way through.

MF rating 75%

Reinforced skips were eventually introduced for the transportation of all kinds of waste away from Sellafield.

MAKERS OF THE 20th CENTURY

meet the movers and shakers of this century as you've never seen them before



Explore the six virtual worlds of
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and meet the men and women
who have shaped the society we live in today.

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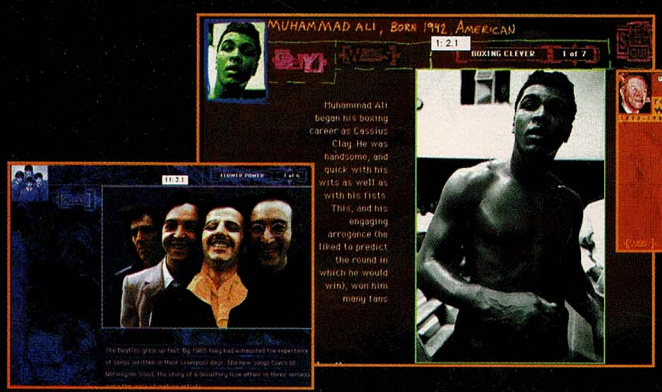
MUHAMMAD ALI, BORN 1942, AMERICAN
BOXING CLEVER
Muhammad Ali began his boxing career as Cassius Clay. He was handsome, and quick with his wits as well as with his fists. This, and his engaging arrogance (he liked to predict the round in which he would win), won him many fans.

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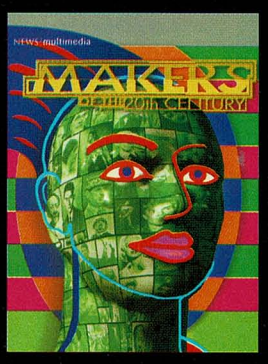

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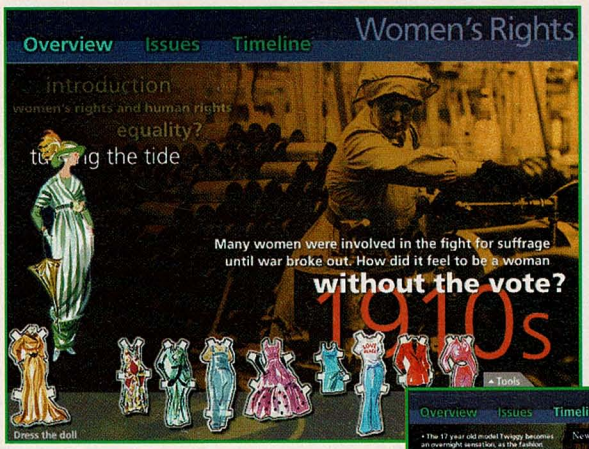
Women's Rights – The Story So Far

The Spice Girls, Anita Roddick and Margaret Thatcher all owe their existence to it. This new CD-ROM tells the story of feminism, and pays respect to sisters doing it for themselves.



The gravitational shifts in hemlines over the years. Dress the doll and the news of each era appears on screen. Cute *and* functional.

The 1960s, Twiggy and the implementation of the divorce bill. It was a time to tune in, demand rights and get rid of that dull hubby.

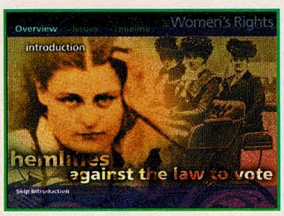
ON THE CD

Check out a full section in our working demo

It's incredible to think that just 200 years ago it was against the law for women to open bank accounts or attend university, and that less than 100 years ago, women did not have the vote. Feminism has been, and continues to be, the longest revolution of them all, an uprising that still hasn't witnessed its final chapter. For this reason *Women's Rights* is cleverly sub-headed *The Story So Far...*

Part of the excellent Times Perspectives series, this pop-sociological history of women's rights charts the rise of women from abject serfdom to the heady position of airline pilot – a celebration of achievement against all the odds. As with the other titles in the series – see *Planet Earth* on page 112 – this is a newspaper-history of events, sifted from the world-class archives of *The Times*. *Women's Rights* is a visually striking and stylishly-designed affair that begins with the earliest rumblings of the Suffragettes and extends as far as Princess Diana's comments on bulimia.

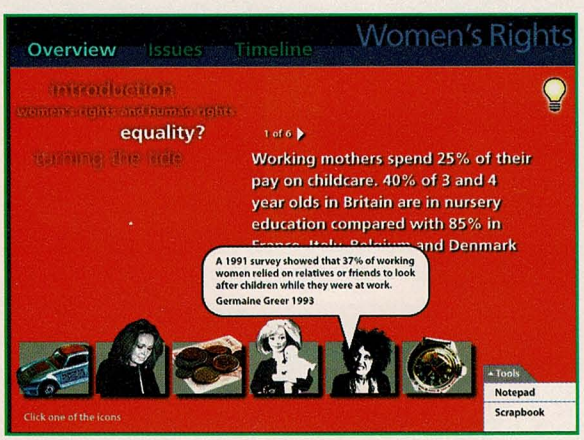
After the briefest of introductions, *Women's Rights* is divided into three main sections. There's an **Overview** section, which looks at human and sex rights issues and enables you to explore the ages of women through the act of dressing a mannequin. There are a number of period-dress outfits to click-and-dress the mannequin with. Click on the power suit, and a summary of where feminism went in the 1980s appears, with a relevant photo of the time. Similarly, click on the mini-skirt for the 1960s, and the rock'n'roll frock for the 1950s. There's also a timeline that zooms over one-and-a-half centuries of news headlines and articles. But the crucial feature of *Women's Rights* is the excellently researched **Issues** section, which explores 11 major themes central to the feminist debate. This is where the flexibility of multimedia really comes into its own.



Back in the dark ages, when women were forced to travel in open topped carriages. In the rain. Wearing silk.

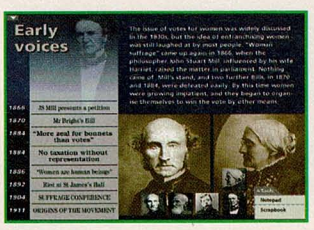
Equality now?

In spite of the 1975 Sex Discrimination Act, women are still paid less than men. They also make up 86% of the part-time workforce – and thus receive fewer job-related benefits.


Overview
Issues
Timeline
Women's Rights
introduction
women's rights and human rights
equality?
1 of 6
Working mothers spend 25% of their pay on childcare. 40% of 3 and 4 year olds in Britain are in nursery education compared with 85% in
and Denmark
A 1991 survey showed that 37% of working women relied on relatives or friends to look after children while they were at work.
Germaine Greer 1993
Tools
Notepad
Scrapbook
Click one of the icons

Germaine Greer rose to fame in the '60s and continues to haunt the bearers of sexist views today. The grizzly old icon is prone to outbursts of nonsense, but her influence cannot be overstated.

The issues range from the Law to the Body, from Motherhood to Notions of Power – and everything is wonderfully linked, enabling you to jump from section to section with blissful ease. For instance, go to a feature on work and home in the 1980s, and you'll find links to notions of fatherhood, the British Liberation Movement and feminism today. As well as containing a handful of sub-issues, each of these issues has a number of related news headings and photographs scattered across the page. Click on these and the related article will open up in a text format. Then – and this is arguably the most useful additional feature – if you want to save any article or photo, you can make a collection in the "scrapbook" provided. It's an ideal way of building a dossier on any particular subject-area that interests you, perfect for students and also considerably quicker and neater than scribbling endless notes, without pictures, from doorstop-sized textbooks.



Early voices, like that of philosopher John Stuart Mill, began to bombard the House of Commons with bills and proposals. Mill himself was inspired by the politics of his wife. Behind every great man...

Granted, this news-only approach may appeal primarily to those studying the subject. There is, after all, scant narrative and little time given to modern feminist culture-icons like Margaret Attwood, kd lang or Anita Roddick. Furthermore, this being a print media translation, there's no video footage – but these are very small gripes. The quality of *Women's Rights* is excellent – and it's guaranteed to leave you feeling both enlightened and entertained.

GIL GILLESPIE

Women's Rights

A detailed, awareness-raising journey into the long and complex history of the struggle for women's rights.

MF rating 78%

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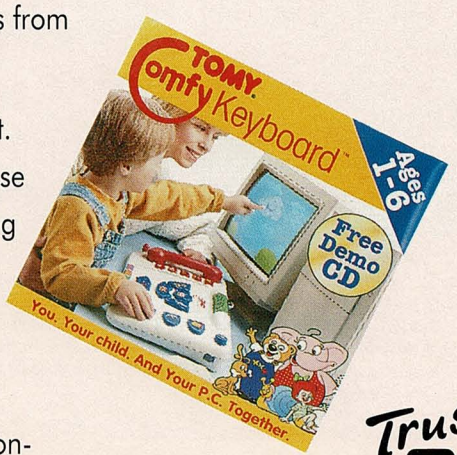

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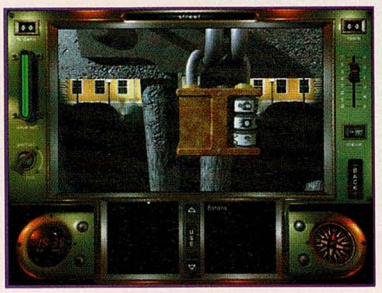
Safecracker

The computer game for the '90s? No enemies after your blood, no life-threatening situations – simply crack the safe, or... well, you're fired. James Ashton wonders what the world's coming to.



Match the three symbols that share a common theme and the padlock will slide smoothly off.

You play computer games and you play them well. You've slain umpteen dragons and rescued all the available princesses; you've smashed drug rings worldwide and captured every Master Criminal. You've destroyed every alien life form that's had the temerity to come even a little too close to Earth and you'd saved the world 17 times before you gave up counting. You've solved all the unexplained murders, found all the kidnapped heirs and heiresses, and if a cat so much as thinks about getting stuck up a tree, you're there well before the Fire Brigade.

But you're bored, aren't you? Jaded? Tired? A bit fed up? It's time for a new challenge? A sinecure – something to keep that super-human mind active, but without all the emotional stress thrown in on top. Why don't you try *Safecracker?*

"*Safecracker,* eh? So I play a top CIA agent who must break into an Iraqi security complex, kill the guards and break into the safe to preserve the nuclear safety of the world?"

No, calm down. You play a security expert who's applied for a job at the renowned safe manufacturer Crabb & Sons. To test that you're as good as you say (and to see whether you deserve the job or not), Boss Crabb sets you a test: break into his headquarters and crack the master safe hidden deep within the 50-roomed mansion.

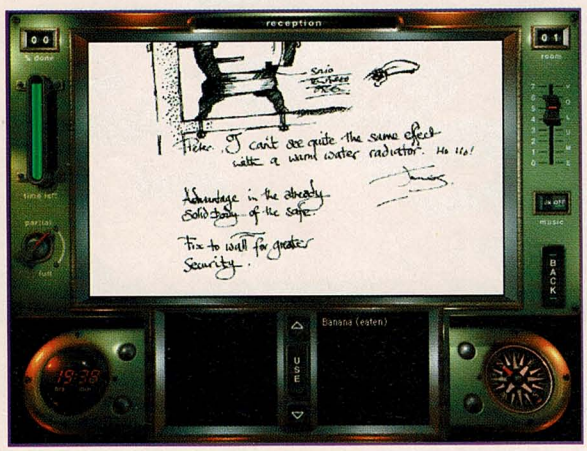
The game starts with a phone call from Crabb, your prospective employer. He tells you that from the phone box you're now standing in, you've got to break the combination code on the front gate and get into the main building before the security patrol picks you up. You have 12 minutes and the clock's running.

"So I take my trusty Uzi 9mm, plenty of ammo clips, some high-explosive charges and..."

NO! You're not allowed to break things and you're certainly not allowed to hurt anyone (it's night-time anyway – they've all gone home). The headquarters are full of the company's safes and almost every room seems to have one. Each is of a differing design (well most of them are prototypes or bizarre one-offs) and each must be opened according to the type of lock it has. If it's a combination, you have to deduce the number. If it's a puzzle, you have to solve it. If it needs keys, you must collect the clues and track them down.

There are 35 minor safes altogether and they either give access to each other, to new areas of the mansion or clues as to how to find and open the Master. Anything you find that you think might be useful in your mission can be stored in your inventory – just like any other adventure game really.

"Right then, if I don't open the Master


reception
Fiche. I can't see quite the same effect with a weird water radiator. Ho Ho!
Advantage in the already Solid Body of the safe.
Fix to instill for greater Security.
Banana (eaten)

The levels are littered with notes for new and ever-more-bizarre types of safe. Keep an eye out for them.

You start the game in a reassuringly British telephone box – the vandalism and smell of urine faithfully recreated on your Mac.

Your telephone briefing will tell you the code you need to get in. After that, you're on your own. You've got 12 minutes...

Know your enemy

There's only one objective in *Safecracker* and that's, er, cracking safes. Here's how it's done...

First, find your safe. Approach it with care and when you're feeling brave enough, twiddle some of its knobs. On this particular model trying the door handle will cause the lights next to the combination wheels to flash, giving valuable clues as to which numbers are right or wrong.

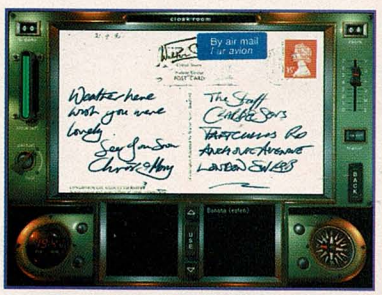
After much head-scratching and cups of tea proportional to the difficulty of your safe, you break in. Inside you'll either find an object you need to open another safe, get access to another safe, or a clue as to how to beat the "Master".

in time, does New York explode or the world end?"

No. You do have a time limit but the penalty for failure is simply not getting your job, nothing more serious than that. And New York wouldn't explode anyway – Crabb & Sons' headquarters are located in London.

"So, let's get this straight. No one's in mortal danger, no one's trying to kill me, there's nothing to break and I won't be responsible for the lives of thousands if I fail. Are you absolutely sure this is a computer game?"

Oh, it's definitely a computer game. It's just that rather than relying on some tawdry storyline to build up the challenge, *Safecracker* uses a high quality graphics engine to link a series of increasingly challenging interactive puzzles. Your own intellectual pride is the spur to finish here, not the cries of innocent maidens, the gallons of blood or the snarls of rabid monsters.



Investigate the staff pinboard to find some amusing postcards. Absolutely no gameplay relevance whatsoever.

"Well, I'm not sure. It all sounds a bit... well, slow."

Well, it's true to say that *Safecracker* is no dramatic rollercoaster ride, but it's not really supposed to be. The enjoyment you'll get from the game is to be had in the satisfaction of trying to open a safe, failing, wondering why, wandering off to another room, searching around, finding another clue, re-tracing your steps and trying all over again.

At the same time, this is no ordinary puzzler. The game includes the innovative first-time use of Quicktime VR, the technology Apple has developed for use in virtual reality simulations. It enables the programmer to create rooms and environments within an application which can then be viewed from any position inside or outside that environment. This is particularly useful for architectural and design presentations as well as for games and leisure software. Here, it ensures that the game doesn't become too linear and that there's always some corner that you haven't fully explored.

"Hold it! I'm getting an inter-stellar distress signal from system Cheap-Thrilltron. The Orbs of Hyperbole have been stolen from Plotline Shakey and The Known Universe™ is under threat. I'll have to go."

And that's what it all comes down to in the end. *Safecracker's* an excellent game which should provide you with many times more fun than a lot of its racier-sounding brethren. The only trouble with it is persuading anyone to give it a go. **MF**

One safe successfully opened and one clue successfully garnered. It's part of the instructions you'll need to open the Master safe.

Safecracker

A gentle game with a well judged difficulty curve. What it might lack in raw excitement it amply makes up for with its excellent graphics and clever, testing puzzles

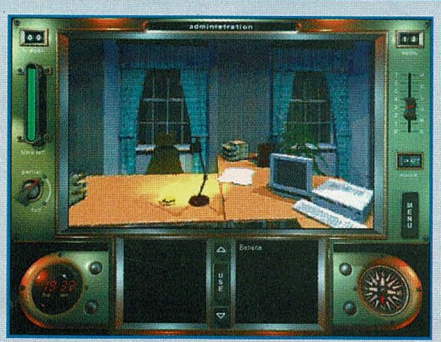
Graphics	**90%**
Sound	**79%**
Gameplay	**81%**

MF rating 82%

Take a look around...

In the days of the Spectrum, Dragon 32, BBC et al, adventure games were usually graphically-unencumbered, text-based affairs. Although there was that perennial problem of syntax – "Open door? Undo door? Prise door? Kick sodding door? Ah, *Unlatch* door" – at least there wasn't that fascinating bit of the room/dungeon/dragon's lair that modern versions show you in billions of colours but won't let you near.

***Safecracker* goes a long way to rectifying this loss of interactivity. You can pan the game "camera" around any scenario, usually in a 180° arc. This may not sound impressive, but the feeling of movement is extremely satisfying and it's also all extremely realistic. It all works like this...**



1 Starting on the left hand side of the room, click, hold and move your mouse to pan right and check out your surroundings.

2 Yep, this is obviously an office, but being as this is *Safecracker,* you're not here to admire the view. What you're really looking for is...

3 ... A safe. Hold on, what's that red thing over there by the wall? It's all a bit blurry. If only you could see more clearly.

4 And thanks to the zoom function, you can. This is the safe you're after and clicking on it should take you across the room to it.

5 One red safe. It looks as if it needs at least three keys to open it. Time for you to start looking in the rest of the building.

PRICE	£34.99	**ON SALE**	Now	**CONTACT**	Empire on 0181 343 7337	**WEB SITE**	http://www.empire.co.uk
MAC	**Processor:** 68020 • **RAM:** 4Mb	**POWERMAC**	**Processor:** any • **RAM:** 4Mb	**REQUIRES**	**System:** 7.0 • **Screen:** 640 x 480 • **Colours:** 256 • 2x speed CD-ROM drive		

Pro Pinball: The Web

If you've never been a fan of pinball, this game will be the experience that converts you. If you're already hooked, it's guaranteed to save you an awful lot of 50p pieces...

The table display is perfect. Computer pinball comes no better than this.

MACFORMAT Classic

To the uninitiated, one pinball table looks much like another: lots of bells, crashes, flickering lights and those round mushroom things that go "ker-chunk" when the ball hits them. It's a game of chance, so why should one table look any different to another?

If you're a disciple of the silver ball, you take this ignorance in your stride. You know the names of the classic tables – the High Speeds, the Party Animals – and know that all pinball tables are not born equal. You may also have previously spurned computer pinball simulators with a dismissive flick of your flipper finger. But now, you might just be forced into admitting that *Pro Pinball: The Web* has all the makings of a real-life classic.

PRO·PINBALL

The table takes the best aspects of pre-microchip pinball and combines it with some of the best newfangled stuff. On the traditional side there are two loops (ball shot from one flipper circumnavigates the table to land back on the opposite or same flipper); two ramps (the ball rises above the normal playing surface to be guided back down somewhere else); four drop-holes (the ball drops down from the play surface and is ejected at another part of the table), as well as the obligatory drop-targets and "mushroom" bumpers.

As you know, though, its not the bare number of features a table has that's important, it's the way they are integrated into mission structures and jackpots. Here *The Web* excels again. Shoot into the top drop-hole and start one of six "special missions", where you must complete a set series of targets before the stopwatch reaches zero. These targets can range from lit drop-holes, to activating the loop lane spinners, to shooting the drop-targets. Points are awarded according to the percentage of the mission you've managed to accomplish before the time runs out. Other top features include a three and six ball lock and multiball, a combo system for performing successive trick shots and an interactive video-game that takes place on the "dot matrix" back-glass display.

The top-sink hole is the key to the game. Use it to start missions and score the jackpot during multiball.

The Web is the best-designed computer pinball simulator yet seen and it's also the most technically accomplished. The super-high screen resolution, the six different table-views (negating the need for that ever-annoying mid-table screen scroll), and the unbelievable detail of the table are amazing enough. But what really sets *The Web* apart is the quality of the simulation. The physics of the ball movements are perfect, down to the teetering bump on the left and right bounce cushions; the flippers feel reassuringly sturdy. Plus, the all important ball-traps and left and right exchanges work as they should. *Pinball '95* and *Crystal Caliburn* did well in this respect, but *The Web* does everything so much better.

Instead of restricting the game to high-end Macs, Empire has painstakingly added a whole raft of optimisation features. The graphics can be turned from "super-high" resolution to "normal" and the sound – the largest processor and memory guzzler – has six switchable quality standards. Setting things up to get the best performance from your Mac is a question of trial and error (it would have been easier if pre-worked set-ups were included), but with a bit of fiddling you can get the best out of the game without too much compromise.

The only criticism that can really be levelled at *The Web* is that maybe the soundtrack music is mixed a little too high in relation to the sound effects. But when you're reduced to this kind of niggle, you know you've got a classic on your hands.

JAMES ASHTON

One in the eye for Mr Sony

Pro Pinball: The Web has already appeared on PC, Sony PlayStation and Sega Saturn, but the Mac version boasts a higher screen resolution than both the 32-bit consoles.

Empire has gone to enormous lengths to get *The Web* to look and feel as accurate as possible – even the table's construction screws are rendered in place.

Pro Pinball: The Web

The finest pinball simulator ever (full stop).

Graphics	**90%**
Sound	**85%**
Gameplay	**91%**

MF rating 90%

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The Elk Moon Murder

You're a seasoned adventurer. You've fought aliens, ghosts and bizarre monsters covered in slime. Now, prepare to enter a dark world of murder, deceit, jealousy, gambling and... er, pottery.

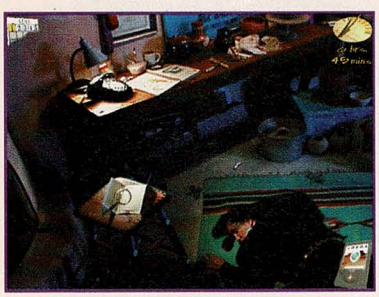
Hard Times

You know actors are finding it tough when they start turning up in computer games. This month's rent arrears victim is Amanda Donohoe, ex of *LA Law* and that film. Oh, what was it again?

Adventure games do not, as a rule, concern themselves with pots. Similarly, Native American issues, domestic intrigue and town planning don't crop up on a regular basis. But, let's face it, with the current plethora of interactive adventure games currently available for the Mac, *The Elk Moon Murder* had to do something to stand out from the crowd.

The game takes you to Santa Fe, New Mexico, and enrols you in the local police force. You and your trusty sidekick John Night Sky (he's a Native American – hence the rather poetic name) are assigned to investigate the murder of the prominent local artist Anna Elk Moon (ditto). The last job Anna was involved in was the restoration of a famous (and need we say priceless) Native American pot, and whoever murdered her has made off with it. As the pot has special political significance (it's America, okay), you've got only five days to solve the case before the FBI descend to take over.

Well there we are – scene set and not a single alien, monster or ghost in sight. Pausing only to note full marks in the "Realistic Storyline" column, you might be disappointed to find that the basic structure of *TEMM* is pretty much the same as any other Mac adventure game released in the past year or so. There's a main navigation screen which consists of a panoramic view of the town. Places and people that are available for you to visit are highlighted by flashing locations on the map, and clicking on these locations will take you to them.



The murder scene. There are some vital clues to find here – in particular, pay attention to the discarded cigarette.

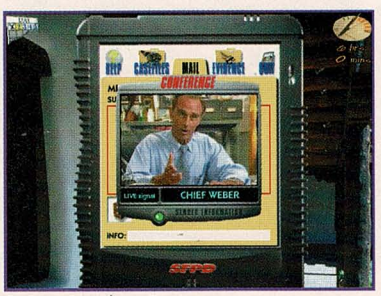
Rather than wasting your time with any more time-consuming navigational clicking, most locations consist solely of an interactive length of FMV (full motion video), where you get to determine the line of questioning via a set of multiple choice options.

The best aspect of the game set-up, though, is your Personal Digital Assistant. Looking suspiciously like a Newton (but with a better screen), this acts as your link to police headquarters as well as your personal store of evidence. Every interview you carry out is recorded here for reference and you can also use the machine to call for forensic reports and to check alibis. The PDA's functions are controlled via mouse clicks and all-in-all this creates a pretty slick and logical method of game-playing.

(Left) The main navigation screen is a panoramic view of the town. Destinations you can visit flash white.

As in most adventure games, frequent game saving is a wise precaution against sudden death.

The Elk Moon Murder comes on two CDs and is a dual-format release, meaning that it'll run on a PC as well as a Mac. Bearing this in mind, and also considering that other recent FMV games have arrived on up to six CDs, the suspicion is that *TEMM* is not exactly an enormous and time-consuming affair. Certainly, the way your five day time limit flies by (all over in three hours or so) indicates that the winning trick is to beat the clock rather than to simply stay alive and plod through to the end. That being so, the game's storyline is still pretty linear, with a relatively low number of investigative options available at any one time and fewer still that make logical sense. If you're an experienced adventure gamer, you'll romp through this, which – considering its price – is a fairly big disadvantage. On the other hand, you're unlikely ever to get a stage where you're inexplicably and frustratingly stuck.



Police Chief Weber will page you from time to time to inform you of any new developments in the case.

This bunch hang out at the local saloon. They might offer you some helpful information or they might just waste your time.

With its refreshingly down-to-earth storyline and quickstep pace, it's hard to dislike *The Elk Moon Murder*. However, it's also impossible to call it much of an advance for this style of game and therefore, pretty hard to recommend it to anyone with much experience of adventuring. So it's an ideal introduction to this style of game perhaps? Oh go on then, that'll do. **JAMES ASHTON**

The Elk Moon Murder

Another high quality adventure game for the Mac. Maybe a little too easy for some and just more of the same for others.

Graphics	**75%**
Sound	**76%**
Gameplay	**74%**

MF rating 74%

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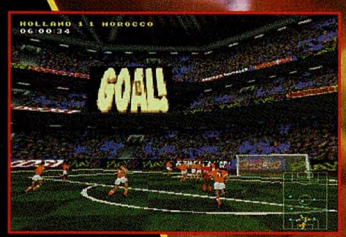

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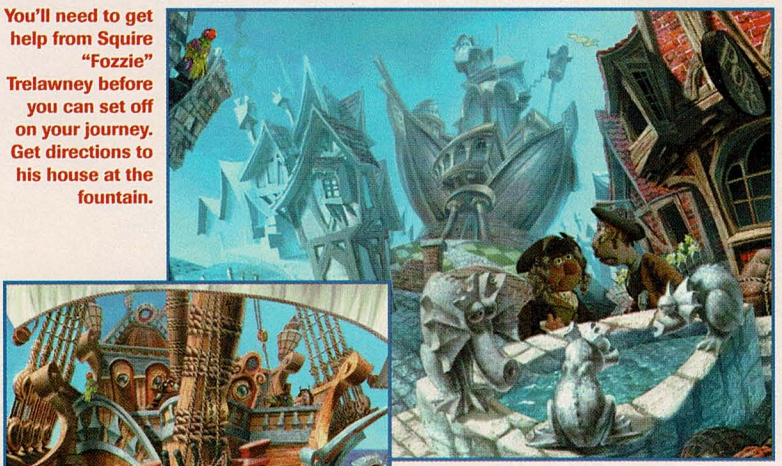
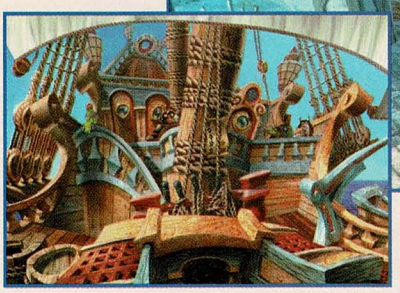
Muppet Treasure Island

A feature film *and* a new TV show – the Muppets are back, and now they're in a great new adventure game. If you want fun, frolics and Miss Piggy, you're in the right place...



You'll need to get help from Squire "Fozzie" Trelawney before you can set off on your journey. Get directions to his house at the fountain.



Life on the ocean wave – check out all the mysterious hot-spots on the ship. Don't forget to ask Stevenson if you get stuck.

When a game describes itself as a family adventure, does that mean it's educational, morally uncomplicated or just undemanding? In the case of *Muppet Treasure Island*, rest assured: it means participating parents will have as much fun as their kids.

The manual says the game is suitable for age five upwards, but a slightly older audience will get more out of it, because the Muppets™ speak in a wise-cracking transatlantic patois that isn't always easy to follow in high-pitched squeaky accents. But, that accepted, it's hard to fault the quality of the script – with its terrible puns, corny one-liners and explosive slapstick (the type you could only get away with inflicting on puppets), it's easily up to the standards set by the film.

You take the part of young Hawkins, who acquires a map from Billy Bones and sets off with Gonzo and Rizzo the Rat to discover Captain Flint's gold. *Muppet Treasure Island* adopts traditional point-and-click adventure mechanics, but with a surprisingly sensible interface. You always know when you can click on a particular object or area because hot-spots are instantly highlighted, visually and often audibly. The cursor changes to let you know whether hitting the mouse button will activate a video clip, give you an object to Drag and Drop, or take you to another location. The keyboard is generally redundant, but a quick tap of the **[space]** bar will graciously abort any video clip you've already watched – a real patience-saver.

In every scene you'll also find Stevenson, your perky parrot guide. Click on him for some off-the-shoulder advice on what to do next, or double-click to look "under his wing" for your inventory, a game-save facility or even your favourite sea shanties. If you keep asking for advice and failing to progress, the difficulty setting reacts and makes things easier by revealing hidden items and pushing you towards the solution.

It's actually impossible to "die" or make an irreversible mistake. For instance, when you're trapped in a room full of dynamite, the only thing you can do is click on the window to escape with Gonzo and Rizzo. Anything else just returns you to the dynamite, and it never does explode.

As for sub-games, you're treated to a puzzle and a pie-slinging affair, which is amusing enough – but in the main game it's not always clear what you should be doing, and more often than not you get though by searching everywhere and trying everything.

Mere pictures fail to convey the effectiveness of the in-game animation. Using some clever masking and "blue screen" techniques, the designers have created QuickTime movies of the Muppets in action and superimposed them on static pre-drawn backgrounds to remarkable effect. They integrate into the game environment, reprising their film roles to guide you through your adventure. Add in celebrity cameos from Billy Connolly and Tim Curry and it's as close to a real *Muppet Show* as you could expect.

Before meeting the Squire you'll need some new clothes. Earn yourself some quick cash by pitching pies at pilfering pirates.

But here's the drawback. Despite coming on three CDs, *Muppet Treasure Island* demands 35Mb of your hard disk and then has the audacity to ask for another 16Mb of RAM to run, something not made clear on the box. We managed to play on an 8Mb Performa by streamlining the System and enabling Virtual Memory, but occasional hitches and slowdown suggested that this wasn't an entirely comfortable arrangement. Worse, the game's reliance on video-clips limits its length to a matter of a few hours – after a couple of replays, you'll have scoured every screen for amusing clickable bits.

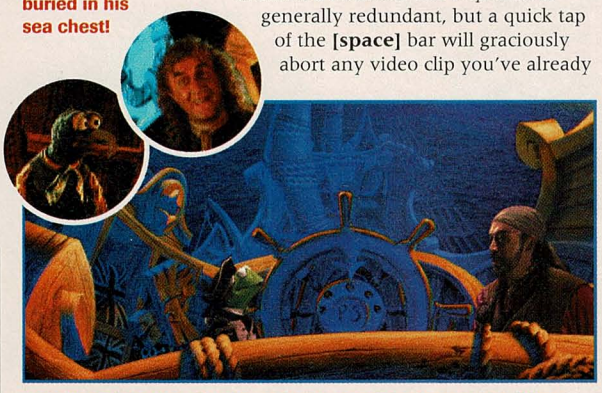
As an adventure game, with some fun and learning activities, *Muppet Treasure Island* is an all too fleeting affair. As an animated CD-ROM storybook, brimful of "pop-up" interactive bits, it's well worth the asking price.

ZY NICHOLS

Colour it

One of the devices under Stevenson's wing is the *MPZ-1000*, an application that enables you to print out scenes from the game. But what if you don't have an expensive colour printer? "Use the black-and-white pages as a colouring book!" cries the Parent's Guide – not a bad idea.

The scene is set as Billy Bones (played by Billy Connolly) leads you to his treasure map. Look out for the dynamite buried in his sea chest!



Help Kermit battle with the evil and scheming Long John Silver, played in this instance by the suitably menacing Tim Curry.

Muppet Treasure Island

Incredible animation, great control system, engaging sub-games and puzzles, but not enough longevity even for younger players.

Graphics	**90%**
Sound	**86%**
Gameplay	**72%**

MF rating 80%

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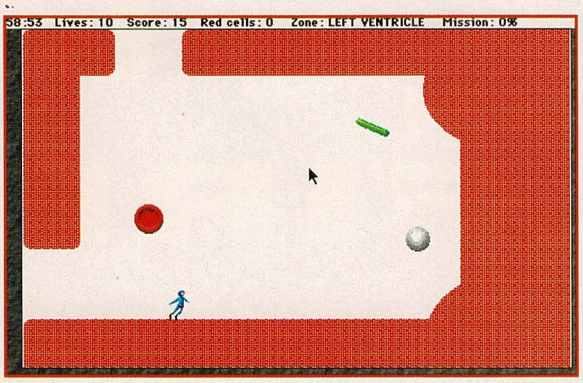
But what about *HyperCard*, you say? Coincidentally enough, this month's worst examples of poor programming are, indeed, concocted in *HyperCard*. This can only possibly be because *HyperCard* makes everything too easy. If you do happen to program in C,assembly language or even BASIC, you have to be (a) pretty smart to make it do anything at all and (b) fantastically single-minded and clear-headed to see it through. Well, it's an interesting theory, anyway.

Fantastic Voyage 2.0

Game
Guiltware, optional $15

Sigh. The Read Me file suggests a multimedia extravaganza, a glorious helter-skelter shoot-'em-up as you whizz through a human body's blood vessels, attack viruses in the venal artery and combat carcinogenic corpuscles in the cerebellum. The graphics and sound, however, suggest a 48K Spectrum with a dodgy sound-chip.

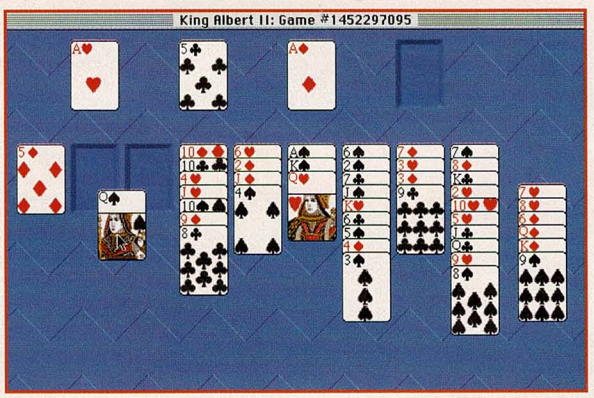


Fantastic Voyage **is a thrilling shoot-'em-up which sees you hurtling through the body's organs and arteries in a life-or-death struggle against 48K Spectrum graphics.**

This is a sort of 2D platform game where you attempt to negotiate a complex, largely unchanging maze, shooting things that appear rather too quickly with a spear gun. You get the option to choose from one of three equally tricky keyboard combinations to control your rigor-mortified frogman...

No, I can't go on. I feel horribly mean criticising someone else's efforts, especially if they're an amateur programmer who's really rather proud of their work.

In this case, the author doesn't want any money, yet observes that the sum of $15 might encourage him to carry on programming... I'm tempted to send him $30 and advise him not to.



King Albert **isn't just another game of Patience. It's a test of skill not luck, and careful strategy, not simply mechanical card-turning.**

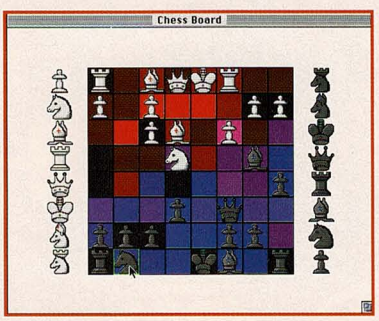
King Albert II

Game
Shareware $10

King Albert is a game of Patience. Unlike most similar card games, though, it involves a great deal of skill – the way the cards fall isn't the most important factor. Equally unusual for a Patience game, the odds against succeeding are as high as two-to-one. Indeed, many Patience experts regard it as the best version of the game ever invented.

Once you've shuffled the pack, you deal out the cards, face-up, in nine neat columns – one card in the first column, two in the second and so on. The remaining seven cards are dealt in a row face-up to form "The Belgian Reserve". The aim is to move cards from all the columns into four ascending heaps, starting with aces and working up. You can also stack the cards on the columns in the usual descending order and alternating colours (red sevens on black eights, and so on.)

The catch is that you can only move one card at a time, so moving entire sequences relies on there being free columns that you can move cards into temporarily as you shunt them about. It



Luminous Chess **doesn't have any artificial intelligence – it's for two human players only. But the squares light up according to their tactical significance. We think...**

does all become crystal clear once you've played it a couple of times (and probably not before), and it requires skill, planning and strategy. Most Patience games require luck and mechanical card-turning. *King Albert* is quite the opposite.

What? You just want to know if the program's any good? It certainly is. There are no card-riffling sound effects, but it looks impressive and plays smoothly. And it also has the advantage that a real game of *King Albert* requires about three acres of table space to lay the cards out...

Luminous Chess

Game
Freeware

With rival chess programmers all falling over themselves to produce the most intelligent chess algorithms, here's one program that neatly sidesteps the whole argument: it's got no brains at all.

Luminous Chess is a two-player game. It doesn't provide an opponent for solitary chess players, it doesn't save any game positions in the event that you're unexpectedly interrupted by the SAS, and it doesn't check that your moves are legal. But it does light up the squares on the board according to their actual strategic significance. I think. The instructions are extremely clear, except in this one particular area.

These same instructions also mention a thing called "Grand Chess" which is apparently played on a larger board with two extra pieces. These are the Cardinal, which combines the moves of the Bishop and the Knight, and the Marshall, an amalgam of the Knight and the Rook.

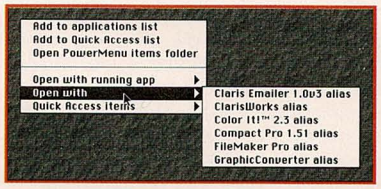
All very, very interesting... but not quite interesting enough.

PowerMenu 1.0

Utility
Shareware $10

For a full range of shareware menu utilities, take a look at this issue's feature on enhancing the Finder (starting on page 38). Here's one that didn't make it in time, but is worth a look anyway.

PowerMenu is a customisable pop-up menu that appears when you press a chosen combination of modifier keys (for example **[control] [option]**) and then click. It works in any application, providing you can eliminate any conflicts between *PowerMenu's* key combination and any of the application's own. The menu appears wherever you click.



***PowerMenu's* neat configurable menus mean that if you want to open documents with something other than their original creator, you don't have to drag them onto application icons any longer.**

When you're working in the Finder, *PowerMenu* does two things. First, if you select a document icon, you can open *PowerMenu* and choose the application you want to open it with. It works in the same way as dropping a file icon onto an application icon – the advantage here being that you don't end up with a Desktop littered with icons.

Second, and equally useful, you can have a list of Quick Access items, which can be documents, applications or even folders. *PowerMenu* can work up to four folder levels deep, so there's plenty of scope for creating your very own custom hierarchies, although the author recommends limiting the depth because it can slow down the appearance of the menu.

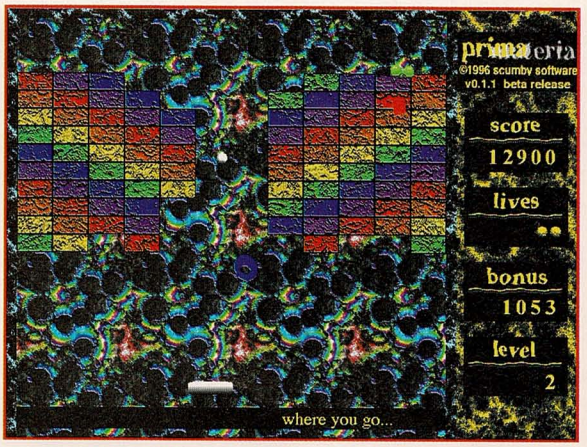
When you're working within an application, you don't get both options, only the Quick Access items. However, this is still pretty useful.

PowerMenu is a useful piece of software. It's easy to customise and can speed up your travels through the Finder. There's a noticeable delay between your pressing the mouse button and the menu appearing, but it doesn't slow you down too much, even if it might grate after a while. Not bad at all.

Prima Materia v 0.0.1

Game
Freeware

No, it's not some literary treatise on chemistry in the middle ages, or even a new cheese from St Ivel. It is, in fact, a *Breakout* clone. You know, where you move a paddle to-and-fro across the bottom of the screen bouncing a ball against rows of blocks above you. Destroy all the blocks and you get to move on to the next level – but miss the ball, and you lose a life. This is a game that is sure to keep you on your toes.



Some might say it's just another *Breakout*-clone, only ten years too late – but *Prima Materia* looks and plays beautifully.

For a game-style that originated when Abba were inventing fashion, it's aged quite remarkably well. Reflex and judgement are everything, while your brain-power and analytical prowess can take a bit of a back seat and relax.

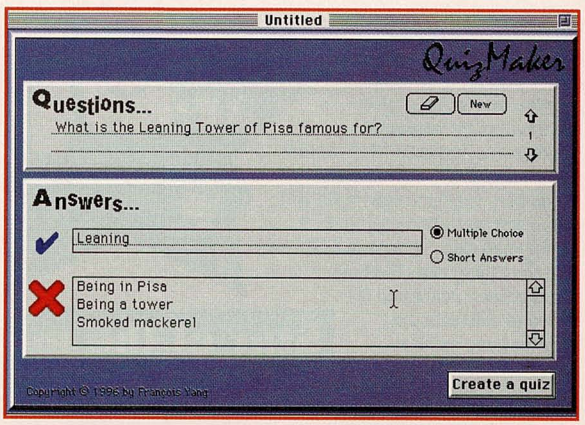
It's surprising that this game-style stays entertaining, but it's even more surprising that *Prima* is free. Indeed, the author says he's only doing it to learn how to program video games. It looks like he doesn't have too much more to learn. The graphics are gob-smackingly colourful and polished, while the sound effects and music are first-rate. In fact, the game's whole presentation is first-rate. So do yourself a favour. Leave your brain resting in that pickle jar in the larder (that's where I leave mine anyway), and have some good old-fashioned gaming fun.

QuizMaker 1.1

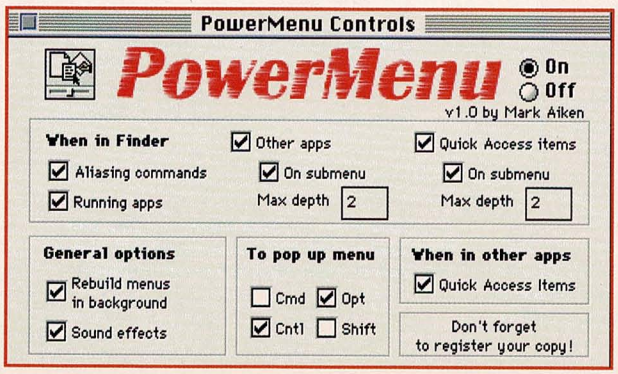
Application
Shareware $10

First the registration application crashed my Mac. Then the main application told me its **Prefs** file was damaged. Then the application window's title bar flickered like a slightly uncertain fluorescent tube. No wonder I couldn't concentrate on the questions...

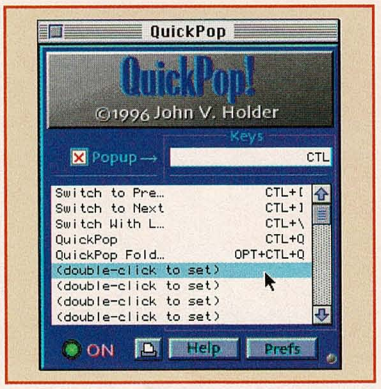
QuizMaker 1.1 says it all in the title, really. It's an application for constructing quizzes and then printing them out,



If you're a professional quiz master (or even a keen amateur), this might be the program you've been waiting for. Possibly.



Programmers' psychology: the more polished the Control Panel looks, the less likely it is to get blamed for those nasty Extension conflicts. Hmm...



***QuickPop* enables you to assign up to 50 keyboard shortcuts for your favourite applications, documents and folders. Now all you have to do is remember them.**

With a modifier key and a single mouse click, *QuickPop* can display a menu anywhere on your screen. A menu of options you can find elsewhere on other menus, true, but it can be *anywhere...*

together with any instructions you specify, for students, pub quiz-goers and any other groups of people who pride themselves on their ability to sit around and answer questions better than anyone else (getting drunk being optional).

It doesn't set out to do very much, but it does that pretty well and it's quite nice to look at, so it's difficult to say anything against it at all. There's nothing worse than an anti-climax...

QuickPop 2.11

Utility
Shareware $10

No matter how good the Finder gets, there will always be programmers who think they can make it better. Sometimes they're right. Sometimes they're not.

QuickPop is a classic case of an excellent utility overtaken by advances in the Finder. Before System 7.5, it would have been a valuable time-saving bag of tricks (still is, if you're resisting upgrading for whatever reason). Post-7.5, it's just an old-fashioned way of doing what you can do perfectly easily anyway.

QuickPop does two things. It pops up a menu anywhere on the screen when you hold down a modifier key of your choice and click the mouse button. This menu contains a list of all running applications, so that you can quickly switch between them. It also has a hierarchical *QuickPop* menu which reveals all your favourite items – at least the ones you've got as far as storing aliases of in the special **QuickPop** folder. All of your Control Panels are available too, via another hierarchical menu, as are all of your current Apple Menu items. Finally, you can also change your **Monitors** and **Sound** settings on-the-fly, without taking a tedious trip to your Control Panels.

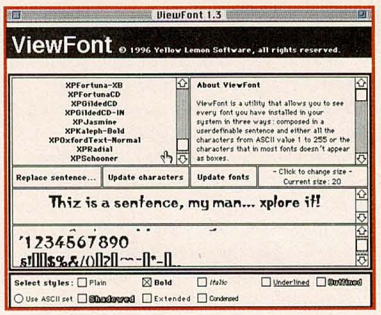
On top of this, you can assign up to 50 shortcut key sequences to your favourite folders, files and applications. The first one we made was a shortcut to the **QuickPop Items** folder, where you store aliases for quick access.

Sounds cool, huh? Until you use it. Then you get to thinking. Why is it useful to be able to pop up a menu anywhere on-screen when you can just as easily swing the mouse across to the Apple menu – itself a great place for storing your favourite stuff? And why bother putting the Apple Menu Items and Control Panels on the *QuickPop* menu? It's just as easy to get to them from the Apple Menu. And why is it so great to be able to switch applications with the QuickPop menu? Is it so hard to get to the Finder's own Applications menu? (It's seldom more than about four-and-a-half inches on my Mac.)

But the weirdest thing is the way it enables you to assign 50 shortcut combinations. Are you going to remember 50? Are you going to be able to find one, never mind 50, that won't clash with any of your favourite applications?

Get a life. If you've got System 7.5, use your hierarchical Apple Menu for this stuff (including **Recent Documents** and **Recent Applications** of course). If you haven't got System 7.5, then go out and get it. As for *QuickPop*, it's quite a nicely programmed solution to a problem that doesn't actually exist any more.

Need to invoice clients according to the amount of time you spent on a job? Well, don't forget to add the many hours you spent trying to figure out *TimeCache*.


ViewFont 1.3
ViewFont © 1996 Yellow Lemon Software, all rights reserved.
About ViewFont
Replace sentence...
Update characters
Update fonts
Thiz is a senfence, my man... xplore it!
Select styles: Plain Bold Italic Underlined
Use ASCII set Shadowed Extended Condensed

Do you want to see what your fonts look like in various sizes and styles, but can't be bothered to reach for the menu bar? Then *ViewFont* could be the rather pointless answer you've been looking for.

TimeCache 1.6 Demo

Application
Shareware $40

Nope. If you can figure out the illustration-free documentation while negotiating an army of anonymous dialogue boxes, you might get *TimeCache* set up and running properly, but there are too

Star of the month

Application
Shareware $40

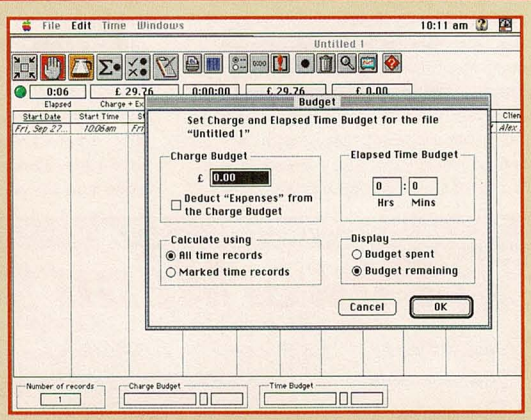
TimeSlice, like *TimeCache*, is a project-costings manager, and the shareware fee is the same, too. But that's where they part company. *TimeSlice* runs twice as fast in half the RAM and in full colour with nice-looking icons.

You can set up projects, clients, hourly rates and categories, and even keep several files open at once. The time is recorded when you start a job and then stopped when you finish. It can even keep track of pauses while you do something else. The timer and hourly rate information is used to calculate the charges you make to your clients.

Alternatively, *TimeSlice* can be used for your own internal administration, keeping track of how long you spend on which jobs and working out which are therefore the most popular. It can thus help you decide which jobs you should ditch, and which you should hike the rates up for.

TimeSlice is fast, slick and easy to understand, and unless it has some nasty bugs and oddities that we didn't encounter, would get a pretty good review as a commercial product, never mind a shareware one.

Even the mini-manual is good, and you can download a fuller version from the owners' Web site. *TimeSlice* does a lot of handy auto-calculation stuff too, like taking account of your expenses. If you run a small company or work for yourself, you really ought to take a close look at this program.



***TimeSlice* is an excellent client-charging and timesheet system that you really should take a long look at if you work in a small business.**

many rough edges, too much needless complexity and far too much sudden disorientation to make it truly worth all that work and effort. Which is a pity, because the basic principle is quite sound. *TimeCache* records the time you spend working on different jobs, related to different projects for different clients. It will output a report to your boss to prove you've been working and you can also check the charges to your client to date.

But the (*HyperCard*) programmers have opted for endless dialogue boxes instead of the much more intuitive and far more straightforward method of giving users the option to simply enter information straight into the display, or via drop-down menus. And although these programmers clearly have a grasp of the organisational structure of the whole thing, they're in too much of a rush to assume everyone else will find it simple. Well, you won't.

Oh, and guys, you can use colour in *HyperCard* now. It makes the application bigger, but that will actually bump up your credibility rating when it comes to claiming that 40 bucks for an indifferent *HyperCard* application.

One other thing bothered me – a lot. I took a look at the registration form and my e-mail address had already been pre-entered. How did they do that?

ViewFont 1.3

Utility
Shareware £10

ViewFont sounds like a great idea: a program that lists all the fonts installed on your System, shows how they look using a sample sentence, enables you to change font size and style and even displays the entire character set.

But it's all part of a rather flimsy and amateurish *HyperCard* stack, and it contains some wasted opportunities. In particular, it would be really, really useful if you could click on one of the special characters to load it into the Clipboard... but unfortunately, you can't do this.

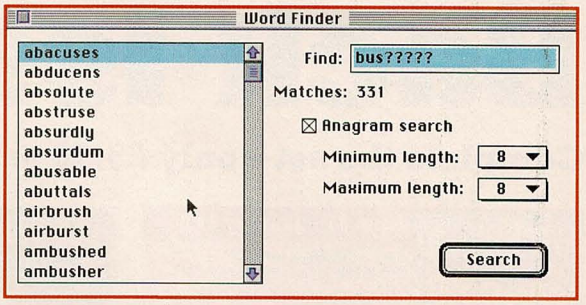
To be fair, this is a failing in other font-viewing utilities too, like *FontScan* and *FontO'Matic*. You *can* cut-and-paste out of Apple's standard *Key Caps* or the excellent *PopChar*, but not view fonts at a decent size. Really, if you want to find out what your fonts look like, you might as well fiddle about with them in the application you want to use them in. *ViewFont* all seems a bit futile in the end.

Word Finder 1.0

Application
Postcardware

Crossword puzzles are a real pain in the ears (anag. 4). No, they really are. You either get the ones that are stupidly easy all the way through ("Small, round and green vegetable found in pods (3)") until you reach the last answer, which turns out to be DIPROPOBENZOATE ("Uncommon chemical (15)"), or the ridiculously hard pseudo-intellectual ones ("Thub retort in artichoke country cycles bones, upset (1,1,1,1,1,37)"). Well, even Inspector Morse (yes, all right, so I've watched it once or twice, just while the dinner's cooking) would be tempted to use this neat little program.

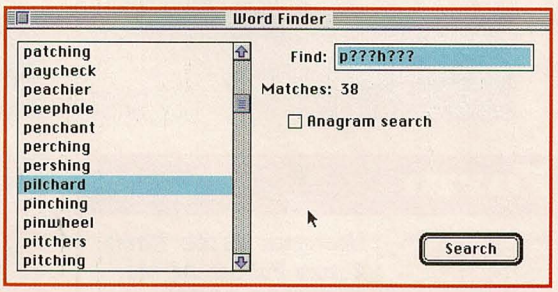
It can tackle two of the biggest hazards facing any crossword-puzzler. The first is the half-finished word. Type in the letters you do know and use question marks for the rest. Then hit **Search** and, before you know it, you have a list of possible words. It's then a case of whizzing your way through them to find the one that bears the faintest relation to the clue. Well, as far as you can tell, anyway.



Don't you just hate anagrams in crossword puzzles? Well don't worry any more, because *Word Finder* eats them for breakfast.

The other hazard is the suspected anagram. You know the warning signs – any clue containing the words "upset", "reorganised", "around", "misplaced" and so on. Type in the words you think need to be rearranged, click on the **Anagram Search** checkbox and hit **Search.** You can even check for smaller words where you know the answer is more than one word. Ingenious.

It's fast, it's simple and it's free. And if it solves just one crossword clue for you, don't forget the cats drop around. *[Whatever the hell that means. – Ed.]* **MF**



Is that last unsolved crossword clue bugging you? *Word Finder* could provide a quick and easy answer right away.

Calorizer 1.6

Application
Shareware $15

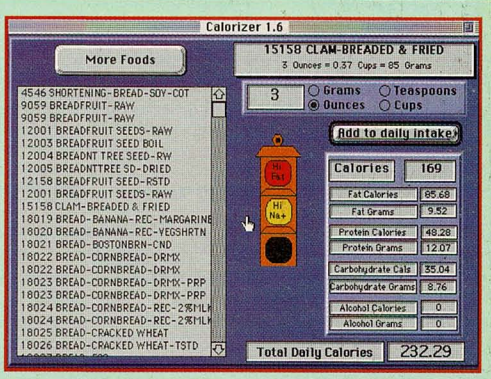
And it seemed like such a good idea. A program that assembles a list of the food you eat in a day and tells you how many calories you've consumed. A program that even tells you how much fat and salt is in each of the foods that you eat. A program that has a companion product that analyses your lifestyle and tells you how many calories you metabolise.

Then reality rears its ugly head. Yes, it's another *HyperCard* stack – or rather, it's a *HyperCard* standalone disguised as an application. Much as I've lavished praise on *HyperCard* in the past, it needs handling carefully if it's to give its best...

In the bin

The basic problem with *Calorizer* is simply finding your favourite foods in the first place. First things first, I thought. Let's start with breakfast. I have toast for breakfast, so I used the search "engine" to look up *toast.* Now the word "engine" is in quotes because that's rather a flattering term for a wedge of code that would have trouble making out the haystack, never mind any needles. I tried looking for *bread*, and after a period of time in which I could easily have consumed nine Mars bars and a case of Special Brew, it returned a long list of products with "bread" in the title, leaving me to face yet another – sadly manual – search.

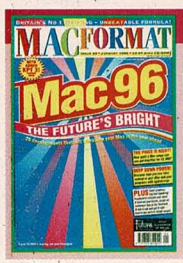
This vast database of foods is clearly American – though this wouldn't be such a problem except for the sluggishness of the search routine and large numbers of irrelevant foodstuffs like roasted breadfruit seeds and bread-spcfrm-hika-drk, whatever that is. I couldn't be bothered to search for the marmalade.



Want to know how many calories you consume in a day? It'll be 500 extra, thanks to the grub you'll guzzle waiting for *Calorizer* to plod through its database.

Back Issues

Complete the set – only £5.00 each, including postage and packing.



Issue 33 – January 1996

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Issue 36 – April 1996

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CD-ROMs: Sorry, no longer available.
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Inside: Create your own multimedia; CD writers; creating atmosphere effects; *Rebel Assault 2; Lightning-Draw GX;* 3D clip art; *SoundEdit 16.*

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Issue 37 – May 1996

Free MacGamer supplement!
CD-ROM: Guide to upgrading your Mac; *Full Throttle, InfoGenie* demos.
Disk: Guide to Mac upgrades; *Quark* game; *SimpleBackup; Fly Swatter.*
Inside: Giant fold-out Mac family tree; Mac upgrades; *Illustrator 6.*

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Issue 39 – July 1996

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Issue 41 – September 1996

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Issue 43 – November 1996

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Disk: *Snood* game, *MacTypingTutor.*
Inside: Artificial life; word processing vs DTP; storage media group test; *RAM Doubler 2, Overdrive* reviewed.

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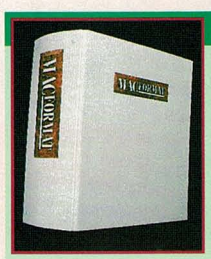

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Are you a winner?

Announcing the lucky winners of competitions in recent issues of MACFORMAT...

Back in MACFORMAT 40, we gave you the chance to win one of two new Sony Trinitron monitors, courtesy of Sony. In our massive group test that issue of 18 of the top 15-inch and 17-inch monitors available, both models on offer earned a MACFORMAT Classic Award for their picture quality, ease of use and excellent documentation.

First prize was a gorgeous 17sfII, a multi-scan 17-inch Trinitron monitor with support for resolutions up to 1,280 x 1,024. It's worth around £760, and the lucky winner drawn from the bulging cardboard box is John Bingham of London NW1.

The runner-up, who wins a beautiful 15-inch Sony 15sfII monitor worth £465, is Matt Edgar of Crookes in Sheffield. Congratulations to both! You can look forward to getting the big picture very soon. (It'll arrive in a big cardboard box on your doorstep!)

In MACFORMAT 41 the big prizes up for grabs were no fewer than three superb Microtek scanners, worth a total of £984, courtesy of leading Mac distributor Computers Unlimited, which specialises in products for the professional graphics, desktop publishing and multimedia markets.

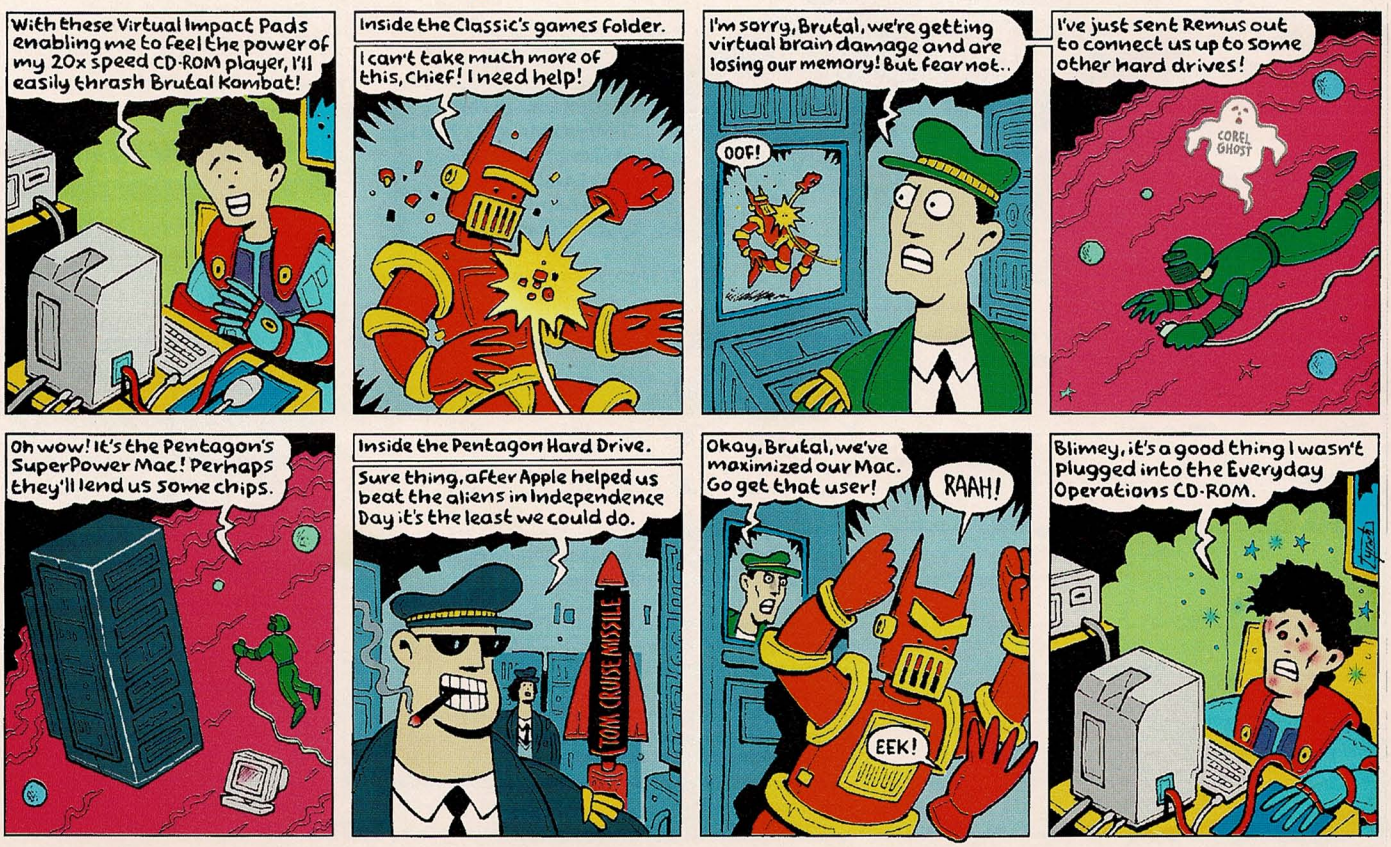
The Microtek E3 is capable of scanning documents right up to A4 size in full colour at a resolution of 300 x 600 dots per inch, and comes complete with a range of useful software, including the easy-to-use image manipulation package *Color It*, a plug-in called *Scan-Wizard* which enables you to scan straight into that program, and the *MicroScan* utility for convenient quick scans.

A pair of gorgeous monitors from Sony and three superb A4 colour scanners from Microtek – prizes won by lucky MACFORMAT readers!

The Microtek E3 sells for around £328, but the three lucky MACFORMAT readers who'll be getting one for the price of a stamp are Charles Delany of Congleton in Cheshire; Alison Ritchie of Forres, Moray; and John Prior of High Wycombe, Bucks. Well done, all! **MF**

The Classic System Crew

by Bob Lynch


With these Virtual Impact Pads enabling me to feel the power of my 20x speed CD-ROM player, I'll easily thrash Brutal Kombat!
Inside the Classic's games folder.
I can't take much more of this, chief! I need help!
I'm sorry, Brutal, we're getting virtual brain damage and are losing our memory! But fear not..
OOF!
I've just sent Remus out to connect us up to some other hard drives!
COREL GHOST
Oh wow! It's the Pentagon's SuperPower Mac! Perhaps they'll lend us some chips.
Inside the Pentagon Hard Drive.
Sure thing, after Apple helped us beat the aliens in Independence Day it's the least we could do.
TOM CRUISE MISSILE
Okay, Brutal, we've maximized our Mac. Go get that user!
RAAH!
EEK!
Blimey, it's a good thing I wasn't plugged into the Everyday Operations CD-ROM.

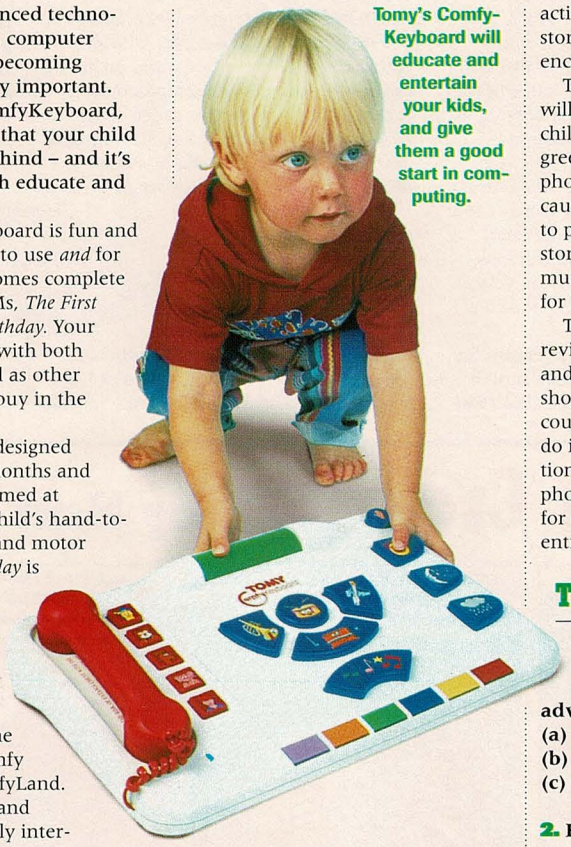
Win one of ten Tomy ComfyKeyboards

Want to give your toddlers a technological head start, or perhaps a robust Mac-related toy they'll love? Here's the ideal opportunity! We have ten Tomy ComfyKeyboards to be won, worth a total of £700, courtesy of Tomy.

In this advanced technological age, computer literacy is becoming increasingly important. With the new ComfyKeyboard, Tomy is ensuring that your child doesn't get left behind – and it's guaranteed to both educate and entertain too.

The ComfyKeyboard is fun and easy for your kids to use *and* for you to set up. It comes complete with two CD-ROMs, *The First Step* and *Feely's Birthday*. Your child can interact with both these titles, as well as other software you can buy in the *ComfyLand* range.

The First Step is designed for kids aged 12 months and upwards, and is aimed at developing your child's hand-to-eye coordination and motor skills. *Feely's Birthday* is aimed at the slightly older age group of 2 to 6 year-olds, and contains four multimedia stories based on the adventures of Comfy characters in ComfyLand. All of the ComfyLand adventures are fully interactive, involving your child in the stories, prompting input and encouraging problem-solving skills.



Tomy's ComfyKeyboard will educate and entertain your kids, and give them a good start in computing.

The Tomy ComfyKeyboard itself will be an instant hit with your child: it has 20 colourful keys, a fun green roller, and a bright red telephone. Kids can alter the weather, cause various musical instruments to play, re-colour objects in the stories, phone any character, and much more – they'll be absorbed for hours!

The Tomy ComfyKeyboard is reviewed this issue on page 106 and sells for around £70 in the shops, but we have ten to be won, courtesy of Tomy – all you have to do is answer three simple questions. You can enter by mail or by phone – see the "How to enter" box for details. The closing date for entries is Friday 29 November.

The Questions

1. What is the name of the location where the ComfyKeyboard CD-ROM adventures are based?
(a) TomyLand
(b) ComfyLand
(c) KeyboardLand

2. How many keys are there on the Tomy ComfyKeyboard?
(a) 12
(b) 15
(c) 20

3. Which of the following was *not* one of our play-testers?
(a) Jamie
(b) Jennifer
(c) Jeremy

The Rules

1. You must send us your entry by midnight on Friday 29 November.
2. Employees of Tomy, Future Publishing Ltd and associated companies, and their agents, together with their families, are not eligible to enter.
3. Multiple entries are not allowed.
4. The editor's decision is final, no correspondence will be entered into and there are no cash alternatives to the prizes.
5. No entries will be accepted unless directed to the phone number or address listed below. **MF**

How to enter

1. Post the coupon at left (or a photocopy) to

Tomy Competition, MACFORMAT, PO Box 700, Wellingborough NN8 1CL

2. Alternatively, dial the Tomy Competition Hotline:

0891 789 380

(The lines are open 24 hours a day, and your call should take no longer than three minutes. Calls are charged at 45p per minute cheap rate and 50p at all other times. You will have the opportunity to opt out from having your name included on a mailing list.)

Send this coupon (or a copy) to: Tomy Competition, MACFORMAT, PO Box 700, Wellingborough NN8 1CL

Title ..... **First name** .....

Surname .....

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.....

..... **Postcode** .....

Daytime telephone .....

Date of birth ..... **Sex:** .....

Mag code: MCF

Your answers

1 (circle one) **(a)** **(b)** **(c)**

2 (circle one) **(a)** **(b)** **(c)**

3 (circle one) **(a)** **(b)** **(c)**

To help us improve the magazine, please answer the questions below. You will be entered into the competition even if you choose not to answer them.

Do you already subscribe to MACFORMAT? ❑ Yes ❑ No
Where do you use a Mac most often? ❑ Home ❑ Work
Do you have an Internet connection? ❑ Yes ❑ No

Your answers to the above questions will be used by Future Publishing for internal marketing purposes. All information will be treated under the terms of the Data Protection Act. Tick here if you do not wish to receive details of other offers from Future Publishing or other carefully selected companies. ❑

THE CHOOSER

MACFORMAT's comprehensive, up-to-date buyer's guide to Mac-related products that are worth your money, based on our own independent, authoritative tests.

- Choosing the right printer
- Complete guide to Mac models
- The MACFORMAT Buyer's Guide
- How to be a smart buyer
- Product News
- Mac Diary
- Mac Contacts
- Free Reader Ads
- Mac user groups

Which printer?

The most expensive printer isn't necessarily the best for you, and you can carry on paying for features you don't need long after you've taken your printer home. Rod Lawton provides a guide to choosing the right model...

All popular desktop printers separate into a few specific types: inkjets, laser printers and more specialised mechanisms like thermal wax and dye-sub. The initial cost is only one of the factors you need to take into account.

Colour or mono?

Do you want to print in colour or mono? It's an important question, because it makes a big difference to how much your print-outs are going to cost. If you must have colour, an inkjet is the only choice. If you think that you might only want it occasionally, it seems sensible to get an inkjet printer that takes black-and-white *and* colour cartridges. But if you use your printer a lot, that could prove expensive compared to a laser printer, where you sacrifice the colour option but save on consumables – you also get smudge-proof print-outs and slightly better quality.

Inkjet

Inkjet printers heat liquid ink rapidly in a small chamber in the print head, forcing a small drop out onto the paper and creating a single "dot". This process is then repeated as the print head moves across the paper, building up the image.

You can also get colour inkjet printers. These combine three different coloured inks to produce the whole spectrum of colours. Many use black ink as well, to achieve extra depth.

Inkjet printers are inexpensive and produce good quality. Because the ink is liquid, however, it does spread slightly as it hits the paper and as it sinks in. You can minimise this by using special coated paper, but this adds to the cost – and the latter is already a problem because the cartridges used in colour inkjets aren't cheap, and you often have to replace them as a set even when only one colour has run out.

Nevertheless, if you must have colour output, inkjets are remarkably inexpensive to buy and perform well. For mono printing, inkjets are equally good value and not too expensive to run, especially if you stick to plain paper (coated paper is unnecessary for black-and-white printing.)

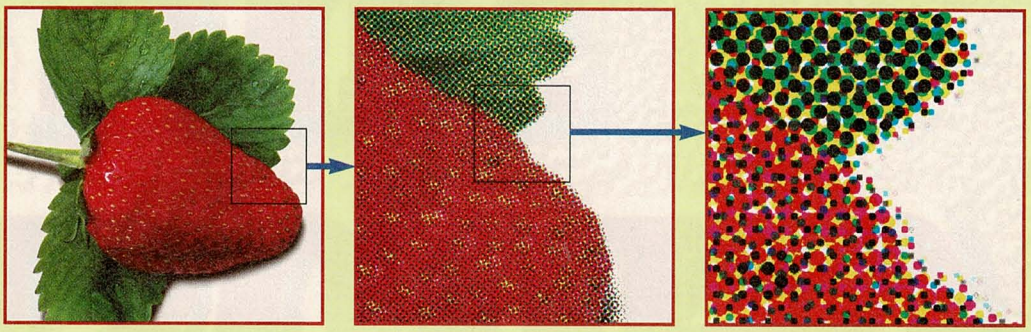
Look out, though, for the new "micro-dry" printing technology, which was launched in Japan last year and is claimed to offer finer resolution than 600dpi (dots per inch) laser output – combined with photo-realistic colour and a sub-£500 price. We'll be reviewing one such printer from ALPS next issue.

Cheap to buy, the Apple StyleWriter 1500 nevertheless produces very good results. It's efficient, and so for light, general purpose use, you really would be daft to pay any more.

Thermal/wax transfer

Thermal printers melt a waxy ink onto the paper to create your print-outs. The mechanism is very compact – Citizen's PN60 is smaller than a box of kitchen foil yet prints on A4 sheets – and you can get mono and colour versions.

However, the print-outs have a waxy, brittle feel and pictures have pronounced banding and speckling unless you use special paper. If you want colour output on plain paper, always choose an inkjet printer in preference to a thermal model.



Colour pictures are built up out of lots of tiny "half-tone" dots of single colours at different sizes – which combine to create the appearance of many different colours from normal viewing distance. The breakdown can be seen when you zoom in on any colour printout, and you can see each half-tone dot in minute detail.

Dye sublimation

Dye sublimation works by vapourising ink onto the paper. This allows component colours to blend much more evenly than the individual dots of inkjet printers – producing extremely smooth-toned pictures. With the right colour calibration software, these can then be used by designers to simulate final printed colours with some accuracy – but even without calibration, dye-sub printers can reproduce images with near-photographic quality.

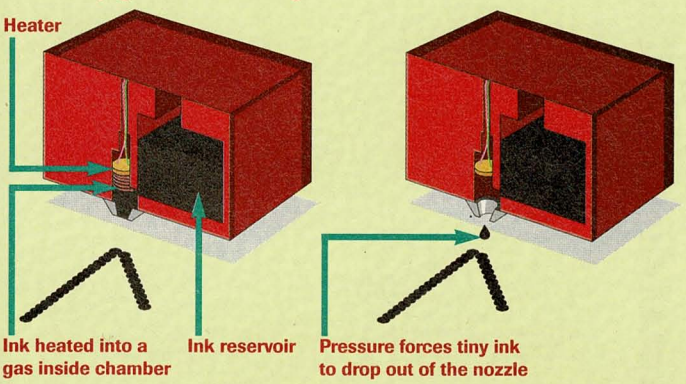
The downside is the cost. Dye-sub printers are now creeping in under the £1,000 barrier, but they are unlikely to come down to anything like colour inkjet prices. The worst news of all, though, is the cost of the inks and the special paper needed. A single A4 sheet will typically cost you £2.50 to produce. Dye-sub printers are by far the best choice where absolute quality is paramount, but they're definitely not general-purpose machines.

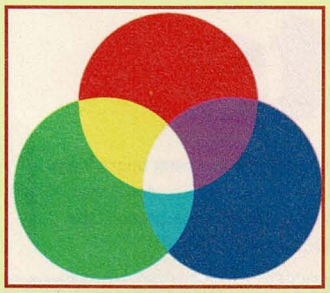
Laser

Laser printers do cost more to buy than inkjet printers, but they cost

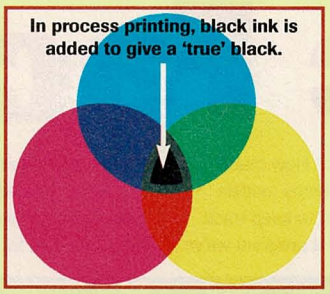
Inkjet printers

In an inkjet printer, the liquid ink is heated in a small chamber, until the pressure forces a tiny drop onto the paper. The head then tracks across the page to create the image.





Your monitor creates the colours you see on-screen by combining three types of light: red, green and blue. Colour printers have to use cyan, magenta and yellow inks (usually black, too) to generate the colours, so don't expect real colour fidelity, except with more expensive printers.



less to run and are generally reckoned to offer better quality, though it's a close-run thing.

Laser printers work by "beaming" an image of the page onto a photo-sensitive drum, which then picks up dry toner particles as it rotates. These then stick to the paper as it's fed through the printer, and "sealed in" by a heated roller (that's why the paper tends to come out warm).

It's a more complex mechanism than you'll find in inkjet printers, hence the higher cost, but there's less of a smudging effect and correspondingly better detail. Also, since nearly all lasers will work with even the cheapest of copier paper – and because dry toner goes a lot further than wet ink – lasers are a lot cheaper to run.

Mono lasers are more expensive than inkjets, but are still perfectly affordable. You can get colour lasers, but they are vastly more complex and far outside the budget of all except design agencies and printing works.

Imagesetters

Imagesetters are the Rolls Royces of printers, not least because they cost about as much as one. Images are created on photographic film, and this is then used to create the metal plates used by printers. The photographic process does give you incredibly sharp results, and a 1,200dpi imagesetter will give much finer detail than a 1,200dpi laser printer, even despite the apparently identical specifications.

Commercial printers need film to make their plates. A 1,200dpi laser printer may produce the quality you need, and you can then supply the printers with "camera-ready" pages – but they'll only have to copy them onto film anyway, and charge you for the privilege. You might just as well go to a bureau and output film anyway – the extra quality in the finished version will almost certainly be visible.

QuickDraw vs PostScript

Your Macintosh stores shapes and text as mathematically-defined curves and angles. But printers can only work with a pattern of dots, so the Mac has to convert these shapes into dots before sending the information to the printer – a process that is known as "rasterising."

The Mac handles all of this using its built-in QuickDraw software. QuickDraw handles both shapes and characters mathematically, but "rasterises" them so that they appear on-screen using pixels – and print out as a pattern of dots.

But QuickDraw isn't the only means of describing shapes. The publishing industry uses the PostScript language, which is more complex and capable of more subtle effects.

PostScript printers cost more because they have their own processors and RAM – but they're essential for designers and illustrators who have to have an accurate print-out to work from. You can print these documents on QuickDraw printers, but the Mac has to simplify some complex effects to convert them into QuickDraw format first. What you get on paper might not be what you'll get when your publication actually goes into print.

Unless you use DTP software or high-end design applications, a PostScript printer is an expensive luxury, although it's getting hard to find a laser printer that isn't PostScript-compatible. If you need PostScript, you may want to avoid non-PostScript printers. They come with "PostScript interpreters," applications which you run on your Mac to rasterise the PostScript output for the printer (instead of the printer doing it itself). However, these will slow you down and simply give your Mac's processor a great deal more work to do.

Make sure it's for a Mac

When you go shopping for a printer, make sure it will connect up directly to your Mac. Any printer designed for a PC will also work with your Mac, but only with an expensive (around £100) adaptor – so, if possible, buy a model made specifically for ythe Mac. Look for printers with a built-in LocalTalk socket and with a Mac version of the driver software. If you like, you can use a "generic" driver to work with your printer, but you won't be able to use any of your printer's special features.

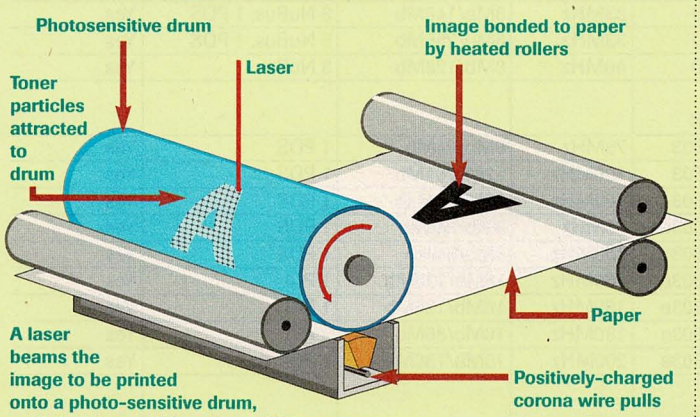
Quoted print speed

Manufacturers quote a "page per minute" speed as a guide to their machine's performance. Ignore it. While the printer might be able to wind through six sheets of paper a minute, the chances are your Mac won't be able to rasterise more than a couple of pages in that time – so, in effect, the print speed guide is of no use. In practice, all non-PostScript printers run at pretty much the same speed – because unless you print the most simple of pages, they all have to wait for your Mac to process the data.

The "page per minute" speed of PostScript printers ought to be more relevant, but often isn't. PostScript printers have to rasterise their own data, but they tend to be able to do this just about as quickly as your Mac can calculate the PostScript data it has to send to them. So, again, don't be too surprised to find PostScript printers offering very similar print speeds. The exceptions are the heavyweight 1,200dpi models, which have to do a lot of work to rasterise PostScript information at that resolution, so they are generally slower. **MF**

The Lexmark Optra R laser printer is capable of 1,200dpi output – at a price. Make sure you need this sort of quality enough to justify cost, long print times and large dimensions.

Laser printers



A laser beams the image to be printed onto a photo-sensitive drum, and gives it a positive charge. This attracts negatively-charged toner, which is then pulled onto the page and fused by heated rollers.

Inside the Buyer's Guide...

All the information you need to make the right buying decision!

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Mac Facts explained

68LC040: a variation of the 68040 processor, which lacks the FPU component its relative enjoys.
FPU: the Floating Point Unit speeds up complex maths calculations – useful for 3D for example.
MHz: a processor's megahertz rating gives an indication of its speed, but the type of processor is equally important when you're comparing models.
NuBus: the Mac's traditional expansion slot. Outdated now, but there are still plenty of cards available.
PCI: Peripheral Component Interconnect is the expansion standard that's replaced NuBus – faster, cheaper (on the whole) and not likely to become redundant in the near future.
PC Card: formerly known as PCMCIA, it's the industry-standard expansion slot for portables. Lots of options.
PDS: the Processor Direct Slot is often used to upgrade your Mac's processor, but you can get other types of card too.
PPC: PowerPC is the standard processor for all Macs nowadays. Broadly speaking, the 604e is the fastest, with the 604, 601, 603e and 603 trailing it – but compare those MHz ratings too.

Colour Classic

The Colour Classic lasted little more than a year on the dealers' shelves (from February 1993 to May 1994), and was the last Classic. What went wrong? After all, here was a computer with the tiniest desktop footprint in the business yet powered, at the time, by one of the fastest processors. It's possible that the Colour Classic made comparisons between the Classic design and the larger LCs and Mac II machines too easy. Before, the little 9-inch mono Macs were a separate breed – astonishingly versatile little computers that had friendliness, charm, and an easy interface, at a time when DOS PCs were bigger than wardrobes and had all the charm of a chartered accountant on valium.

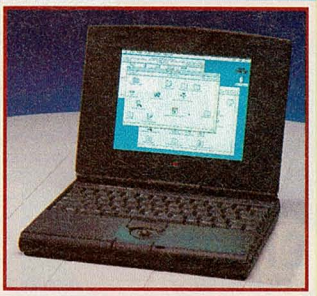
But when the Classic went colour, it stopped being a wonderful anachronism and jumped into the commerial arena with the other Macs. Suddenly it stopped looking like a friendly little companion, and more like a cramped, outdated little relic. It was the last of the first true Macintoshes.

Mac Facts

What processor is in your Mac? How much RAM can you add? With so many models over the years, it can be hard to keep track. Whether you want to know if you can use a program we've reviewed this issue or need to know what upgrades you can fit, our complete table of every Mac model ever should help. Current models are coloured blue-green – see MACFORMAT 42 for tests of many models.

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU
Compact Macs					
Mac 128K	68000	8MHz	128K/not exp	None	No
Mac 512K	68000	8MHz	512K/not exp	None	No
Mac Plus	68000	8MHz	1Mb/4Mb	None	No
Mac SE	68000	8MHz	1Mb/4Mb	1 PDS	No
Mac Classic	68000	8MHz	1Mb/4Mb	None	No
Mac SE/30	68030	16MHz	1Mb/128Mb	1 PDS	Yes
Classic II (= Performa 200)	68030	16MHz	2Mb/10Mb	None	Optional
Color Classic	68030	16MHz	2Mb/10Mb	1 LC-PDS	Optional
Mac II Series					
Mac II	68020	16MHz	1Mb/68Mb	6 NuBus	Yes
Mac IIx	68030	16MHz	1Mb/128Mb	6 NuBus	Yes
Mac IIcx	68030	16MHz	1Mb/128Mb	3 NuBus	Yes
Mac IIvi	68030	16MHz	4Mb/68Mb	3 NuBus	Optional
Mac IIsi	68030	20MHz	1Mb/65Mb	1 NuBus/PDS	Optional
Mac IIci	68030	25MHz	1Mb/128Mb	3 NuBus	Yes
Mac IIvx (= Performa 600)	68030	32MHz	4Mb/68Mb	3 NuBus	Yes (not 600)
Mac IIfx	68030	40MHz	1Mb/128Mb	6 NuBus, 1 PDS	Yes
LCs					
Mac LC	68020	16MHz	2Mb/10Mb	1 LC-PDS	Optional
Mac LC II (= Performa 400)	68030	16MHz	4Mb/10Mb	1 LC-PDS	Third-party
Mac LC III (= Performa 450)	68030	25MHz	4Mb/36Mb	1 LC-PDS	Optional
Performas (non-PowerPC)					
Performa 475 (= LC475)	68LC040	25MHz	4Mb/36Mb	1 LC-PDS	Upgrade
Performa 630 (= LC630)	68LC040	33MHz	4Mb/36Mb	1 LC-PDS	Upgrade
Centris series					
Centris 610	68LC040	20MHz	4Mb/68Mb	1 NuBus/PDS	Upgrade
Centris 650	68040	25MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes
Quadra series					
Quadra 610	68040	25MHz	4Mb/68Mb	1 NuBus/PDS	Yes
Quadra 660AV	68040	25MHz	8Mb/68Mb	1 NuBus/PDS	Yes
Quadra 700	68040	25MHz	4Mb/64Mb	2 NuBus, 1 PDS	Yes
Quadra 900	68040	25MHz	4Mb/256Mb	5 NuBus, 1 PDS	Yes
Quadra 650	68040	33MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes
Quadra 800	68040	33MHz	8Mb/146Mb	3 NuBus, 1 PDS	Yes
Quadra 950	68040	33MHz	8Mb/256Mb	5 NuBus, 1 PDS	Yes
Quadra 840AV	68040	40MHz	8Mb/128Mb	3 NuBus	Yes
PowerMac Performas					
Performa 5200	PPC 603	75MHz	8Mb/64Mb	1 PDS	Yes
Performa 5260	PPC 603	100MHz	12Mb/64Mb	1 PDS	Yes
Performa 6320	PPC 603	100MHz	12Mb/64Mb	1 PDS	Yes
Performa 6200	PPC 603e	75MHz	8Mb/64Mb	1 PDS	Yes
Performa 5300	PPC 603e	100MHz	8Mb/64Mb	1 PDS	Yes
Family Mac 5400/160	PPC 603e	160MHz	16Mb/136Mb	1 PCI	Yes
Family Mac 5400/180	PPC 603e	180MHz	16Mb/136Mb	1 PCI	Yes
Home Office 6400/180	PPC 603e	180MHz	16Mb/36Mb	2 PCI	Yes
Home Office 6400/200	PPC 603e	200MHz	16Mb/136Mb	2 PCI	Yes
Power Macintoshes					
PowerMac 6100/60	PPC 601	60MHz	8Mb/72Mb	1 NuBus/PDS	Yes
PowerMac 6100/66	PPC 601	66MHz	8Mb/72Mb	1 NuBus/PDS	Yes

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU
PowerMac 7100/66	PPC 601	66MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes
PowerMac 7200/75	PPC 601	75MHz	16Mb/256Mb	3 PCI	Yes
PowerMac 7100/80	PPC 601	80MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes
PowerMac 8100/80	PPC 601	80MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes
PowerMac 7200/90	PPC 601	90MHz	16Mb/256Mb	3 PCI	Yes
PowerMac 7500/100	PPC 601	100MHz	16Mb/512Mb	3 PCI, 1 PD	Yes
PowerMac 8100/100	PPC 601	100MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes
PowerMac 8100/110	PPC 601	110MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes
PowerMac 8200/120	PPC 601	120MHz	16Mb/256Mb	3 PCI	Yes
PowerMac 8500/120	PPC 604	120MHz	16Mb/512Mb	3 PCI, 1 PD	Yes
PowerMac 9500/120	PPC 604	120MHz	16Mb/768Mb	6 PCI, 1 PD	Yes
PowerMac 9500/132	PPC 604	132MHz	16Mb/768Mb	6 PCI, 1 PD	Yes
PowerMac 7600/132	PPC 604e	132MHz	16Mb/512Mb	3 PCI	Yes
PowerMac 8500/180	PPC 604e	180MHz	16Mb/512Mb	3 PCI	Yes
PowerMac 9500/200	PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes
PowerMac 9500/180 MP	4xPPC 604e	180MHz	32Mb/768Mb	6 PCI	Yes
Umax Mac-compatibles					
Pulsar 150 (was Pulsar 1500)	PPC 604	150MHz	16Mb/1Gb	6 PCI	Yes
Power Computing Mac-compatibles					
PowerCenter 120	PPC 604	120MHz	16Mb/256Mb	3 PCI	Yes
PowerCenter 132	PPC 604	132MHz	16Mb/256Mb	3 PCI	Yes
PowerCenter 150	PPC 604	150MHz	16Mb/256Mb	3 PCI	Yes
PowerTower 180	PPC 604	180MHz	16Mb/256Mb	3 PCI	Yes
DayStar Mac-compatibles					
Genesis MP600	4xPPC 604e	150MHz	0Mb/1.5Gb	6 PCI	Yes
Portables					
Macintosh Portable	68000	16MHz	2Mb/9Mb	Modem slot	No
PowerBook 100	68000	16MHz	4Mb/8Mb	Modem slot	No
PowerBook 140	68030	16MHz	4Mb/8Mb	Modem slot	No
PowerBook 170	68030	25MHz	4Mb/8Mb	Modem slot	Yes
PowerBook 145	68030	25MHz	4Mb/8Mb	Modem slot	No
PowerBook 145b	68030	25MHz	4Mb/8Mb	Modem slot	No
PowerBook 160	68030	25MHz	4Mb/14Mb	Modem slot	No
PowerBook 150	68030	33MHz	4Mb/40Mb	Modem slot	No
PowerBook 165c	68030	33MHz	4Mb/14Mb	Modem slot	No
PowerBook 180	68030	33MHz	4Mb/14Mb	Modem slot	Yes
PowerBook 180c	68030	33MHz	4Mb/14Mb	Modem slot	Yes
PowerBook 165	68030	33MHz	4Mb/14Mb	Modem slot	No
PowerBook 520	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade
PowerBook 520c	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade
PowerBook 540	68LC040	33MHz	4Mb/36Mb	Modem slot	No
PowerBook 540c	68LC040	33MHz	4Mb/36Mb	Modem slot	No
PowerBook 190	68LC040	33MHz	8Mb/40Mb	2 PC card	No
PowerBook 190cs	68LC040	33MHz	8Mb/40Mb	2 PC card	No
PowerBook 5300	PPC 603e	100MHz	8Mb/56Mb	2 PC card	Yes
PowerBook 5300c	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes
PowerBook 5300ce	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes
PowerBook 5300cs	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes
Duos					
PowerBook Duo 210	68030	25MHz	4Mb/32Mb	Modem slot	With Dock
PowerBook Duo 230	68030	33MHz	4Mb/32Mb	Modem slot	With Dock
PowerBook Duo 250	68030	33MHz	4Mb/32Mb	Modem slot	With Dock
PowerBook Duo 270c	68030	33MHz	4Mb/32Mb	Modem slot	Yes
PowerBook Duo 280	68LC040	33MHz	4Mb/40Mb	Modem slot	No
PowerBook Duo 280c	68LC040	33MHz	4Mb/40Mb	Modem slot	No
PowerBook Duo 2300c	PPC 603e	100MHz	8Mb/56Mb	Modem slot	Yes
Duo Docking Stations					
PowerBook Duo MiniDock	-	-	-	None	No
PowerBook Duo Dock	-	-	-	2 NuBus	Optional
PowerBook Duo Dock II	-	-	-	2 NuBus	Yes
PowerBook Duo Dock Plus	-	-	-	2 NuBus	No



It's such an excellent idea, it's amazing that it hasn't taken the Mac world by storm. With a PowerBook Duo and a Duo Dock, you get to combine all the advantages of a portable and the power, expandability and versatility of a desktop Mac too. When you're on the move, the Duo works just like a PowerBook, yet when you get home, or back to the office, you can slot it into the hole in the front of your Duo Dock and you have a fully-functional Mac with a proper monitor, expansion slots – the lot. No more nightmares for designers trying to squeeze expansion capabilities into a laptop computer, and no more having to lug a floppy drive round with (or in) your PowerBook.

Do Duos have disadvantages? Well, if you have both a PowerBook and a desktop Mac you can keep your data safe by storing it in two places rather than one, whereas with a Duo all your eggs are in one basket; but apart from that, it's hard to see why the Duo hasn't become the world's favourite computing solution.

Price Check

These are the current estimated street prices for all current Macs and Mac-compatible computers on sale in the UK. All prices include VAT.

This autumn is the busiest ever for Mac releases, with the Mac-compatible choice in particular really hotting up. Look out next issue for new machines from every Mac maker.

Apple Computer
Apple: 0800 127753

Performa 5260	£1,385
Performa 6320	£1,475
Family Mac 5400/160	£1,804
Family Mac 5400/180	£2,133
Home Office 6400/180	£2,033
Home Office 6400/200	£2,314
PowerMac 8200/120	£1,945
PowerMac 7600/132	£2,720
PowerMac 8500/180	£3,825
PowerMac 9500/200	£4,212
PowerMac 9500/180 MP	£4,840
PowerBook 5300cs	£1,609
PowerBook Duo 2300c	£2,433

DayStar
CU: 0181 200 8282

Genesis MP600	£11,397

Power Computing
MCM: 0171 724 4104

PowerCenter 132	£1,761
PowerCenter 150	£1,996
PowerCenter 180	£3,049

To receive a FREE catalogue, please complete and return to Performance Direct, FREEPOST, EGHAM, Surrey TW20 9BR or Call 01784 477 477

Name:

Company:

Address:

Post Code:

Phone:

Fax:

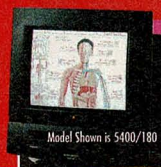
Code: MACF12

Available in November

Why...

buy your Mac from Performance Direct ?

Performa 5400 – Family Macintosh



Model Shown is 5400/180

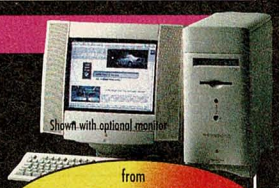
- 160 or 180Mhz PPC 603e processor
- Built in 15in AV monitor (1024x768)
- Internal 28.8k modem & 8xCDRom
- Includes mouse & keyboard
- Apple TV (180 Mhz model)
- FREE software, including Claris Works, Apple Internet Kit, Grolier Encyclopedia, and Disney CD Collection

Model	16Mb	24Mb	32Mb	48Mb
5400/160Mhz 1.6GbHD	£1,403	£1,445	£1,473	£1,546
5400/160Mhz 3.6GbHD	£1,719	£1,762	£1,789	£1,862
5400/180Mhz 1.6GbHD	£1,658	£1,700	£1,728	£1,800
5400/180Mhz 3.6GbHD	£1,974	£2,017	£2,044	£2,117

from **£1,403** £54 per month*
£1649 incl VAT

Performa 6400 – Home Office

- 180 or 200Mhz PPC 603e processor
- Supports monitors up to 1024x768
- Internal 28.8k modem & 8xCDRom
- Includes mouse & keyboard
- 2 PCI expansion slots
- FREE software, including Claris Works, Apple Internet Kit, Grolier Encyclopedia, and Disney CD Collection

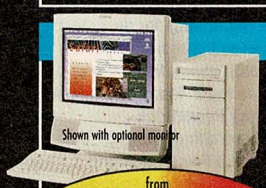


Shown with optional monitor

Model	16Mb	24Mb	32Mb	48Mb
6400/180Mhz 1.6GbHD	£1,295	£1,337	£1,365	£1,438
6400/180Mhz 3.6GbHD	£1,561	£1,603	£1,631	£1,703
6400/200Mhz 1.6GbHD	£1,565	£1,607	£1,635	£1,708
6400/200Mhz 3.6GbHD	£1,831	£1,873	£1,901	£1,973

from **£1,295** £50 per month*
£1522 incl VAT

PowerMac 8200/120



Shown with optional monitor

- 120Mhz PPC 601 processor
- Up to 4Mb VRAM (1280x1024 pixels)
- Internal 8x CD Rom
- 3 PCI expansion slots
- Built-in Ethernet
- 256k Level 2 cache
- FREE software, including MS Office 4.21 and Apple Internet Kit

Model	16Mb	32Mb	48Mb	96Mb	128Mb
8200/120Mhz 1.2GbHD	£1,515	£1,585	£1,656	£1,871	£2,025
8200/120Mhz 3.2GbHD	£1,781	£1,851	£1,921	£2,136	£2,290
8200/120Mhz 5.2GbHD	£2,148	£2,218	£2,288	£2,503	£2,657

from **£1,515** £58 per month*
£1780 incl VAT

PowerMac 7600/132

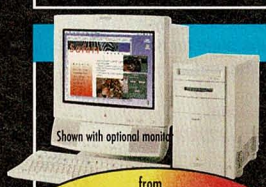
- 132Mhz PPC 604 processor (upgradable to 250Mhz)
- Fast 64bit VRAM up to 4Mb (1280x1024)
- Fast SCSI bus (up to 10Mb/s)
- Internal 8x CD Rom
- 3 PCI expansion slots
- Built-in Ethernet
- 256k Level 2 cache
- FREE software, including MS Office 4.21 and Apple Internet Kit

Shown with optional monitor

Model	16Mb	32Mb	48Mb	96Mb	128Mb
7600/132Mhz 1.2GbHD	£2,119	£2,189	£2,259	£2,474	£2,617
7600/132Mhz 3.2GbHD	£2,385	£2,455	£2,525	£2,740	£2,883
7600/132Mhz 5.2GbHD	£2,751	£2,822	£2,892	£3,107	£3,249

from **£2,119** £81 per month*
£2490 incl VAT

PowerMac 8500/180



Shown with optional monitor

- 180Mhz PPC 604e processor (upgradable to 250Mhz)
- Fast 64bit VRAM up to 4Mb (1280x1024)
- Fast SCSI bus (up to 10Mb/s)
- Internal 8x CD Rom
- 3 PCI expansion slots
- Built-in Ethernet
- 256k Level 2 cache

Model	16Mb	32Mb	48Mb	96Mb	128Mb
8500/180Mhz 2GbHD	£2,979	£3,049	£3,119	£3,334	£3,477
8500/180Mhz 4GbHD	£3,244	£3,314	£3,385	£3,600	£3,742
8500/180Mhz 6GbHD	£3,611	£3,681	£3,751	£3,966	£4,109

from **£2,979** £114 per month*
£3500 incl VAT

PowerMac 9500/200 & 180MP

- One 200Mhz or two 180Mhz PPC 604e processors
- Fast 64bit VRAM up to 4Mb (1280x1024)
- Fast SCSI bus (up to 10Mb/s)
- Internal 8x CD Rom
- 6 PCI expansion slots
- Built-in Ethernet
- 512k Level 2 cache

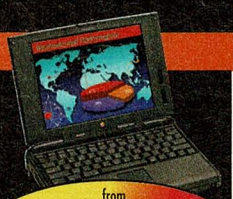
Shown with optional monitor

Model	32Mb	64Mb	96Mb	128Mb	256Mb
9500/200Mhz 2GbHD	£3,280	£3,423	£3,565	£3,708	£4,278
9500/200Mhz 6GbHD	£3,912	£4,055	£4,198	£4,340	£4,911
9500/180Mhz MP 2GbHD	£3,770	£3,913	£4,055	£4,198	£4,768
9500/180Mhz MP 6GbHD	£4,403	£4,545	£4,688	£4,831	£5,401

from **£3,280** £126 per month*
£3854 incl VAT

PowerBook 5300cs

- 100Mhz PPC 603e processor
- 8 or 16Mb RAM (expandable to 64Mb)
- 750Mb hard drive
- 10.4in dual scan colour display
- Built in SCSI port
- PCMCIA expansion slot
- Local talk and Infra red networking (supports Ethernet via PC card)
- 16bit stereo sound
- Built in microphone & speakers
- Ni-MH battery (up to 4.5hrs)



Models	
PowerBook 5300cs 750HD, 8Mb RAM	£1,392
PowerBook 5300cs 750HD, 16Mb RAM	£1,452

from **£1,392** £53 per month*
£1636 incl VAT

UMAX Apus

Model Shown is Apus 2000 with optional monitor

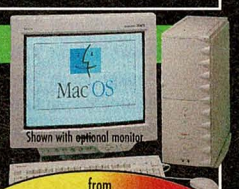
- Choice of 3 Models:
- Apus 2000/120 (as shown) with 120Mhz PPC 603 processor, 850Mb IDE drive, 8 speed SCSI CD Rom, 2 PCI slots, 1Mb VRAM, keyboard & mouse, FREE Claris Works and FWB HD toolkit
- Apus 2000/166 as 120 but with 166Mhz 603e processor, 1.2Gb IDE drive & 256k cache.
- Apus 3000/200 as 166 but in mini-tower with 200Mhz 603e processor, 2Gb IDE drive 2Mb VRAM & SR5 surround sound speakers.

Model	16Mb	32Mb	48Mb	64Mb	80Mb
Apus 2000/120Mhz 850MbHD	£999	£1,069	£1,139	£1,212	£1,284
Apus 2000/166Mhz 1.2GbHD	£1,299	£1,369	£1,439	£1,512	£1,584
Apus 3000/200Mhz 2GbHD	£1,599	£1,669	£1,739	£1,812	£1,884

from **£999** £38 per month*
£1174 incl VAT

UMAX Pulsar

- Choice of 150Mhz 604, Two x 180Mhz 604e or 200Mhz 604e PPC processors
- 2Mb 128bit IMS Twin Turbo graphics card
- Fast 2.1Gb SCSI hard drive
- Internal 8x CD Rom
- 6 PCI expansion slots
- Built-in Ethernet
- 512k Level 2 cache
- FREE Claris Works and FWB HD toolkit software



Shown with optional monitor

Model	16Mb	32Mb	48Mb	96Mb	128Mb
Pulsar 150Mhz 2.1GbHD	£2,249	£2,319	£2,389	£2,604	£2,747
Pulsar 180Mhz MP 2.1GbHD	£3,499	£3,569	£3,639	£3,854	£3,997
Pulsar 200Mhz 2.1GbHD	£2,995	£3,065	£3,135	£3,350	£3,493

from **£2,249** £86 per month*
£2643 incl VAT

Scanners & Input Devices

Umax S6E (600 dpi)	£249
Umax S12 (1200 dpi)	£499
Umax Powerlook II Pro (1200 dpi)	£1499
Umax Powerlook 2000 (2000 dpi)	£2995
Umax Mirage (A3 scanner)	£5499
Apple One Colour Scanner (600 dpi)	£432
Apple Quicktake 150 Camera	£455
Wacom Ultrapad A5	£259
Wacom Ultrapad A4	£359
Visioneer Paperport VX	£249

Printers

Apple Colour Stylewriter 2500	£269
Apple 4/600 PS laser	£569
Apple 12/640 PS laser	£1059
Apple 16/600 PS laser	£1299
HP 870cxi colour inkjet	£call
HP 4MV (600dpi A3 postscript laser)	£call
HP 5si (600dpi postscript laser)	£call

Networking & Comms

Ethernet Cards	from £49
Ethernet Transceivers	from £19
100BaseT Fast Ethernet Cards	from £159
16 Port 10BaseT Hub	£269
Supra 36.6 modem	£109
US Robotics Mac'n'Fax 28.8 modem	£149
Motorola Lifestyle modem	£125

Monitors

Apple MultipleScan 15in	£282
Apple MultipleScan 1705	£509
Apple MultipleScan 1710 Trinitron	£730
Apple MultipleScan II 20in Trinitron	£1249
Samsung 15in	£259
Samsung 17in	£479
Samsung 21in	£1259
Goldstar 20in	£849

All memory configurations on this page are based on current stock prices. Prices are rising, so BUY NOW !

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Bruce Cattell, Managing Director

32Mb Dimms
only £139
£163 incl VAT

Memory prices are rising. Buy now while stocks last

MEMORY	4Mb	8Mb	16Mb	32Mb	64Mb
30 Pin Simms	£24	–	£125	–	–
72 Pin Simms	£18	£30	£65	£135	–
PowerMac Dimms	£29	£37	£70	£139	£299
Powerbook Memory from	£79	£139	£209	£409	–

Plasmon 650Mb PD Drive

- Fast 650Mb Rewritable Optical
- Quad Speed CD ROM
- Unlimited storage capacity

The new PD Drive combines the best of a Quad speed CD ROM drive with a fast 650Mb Optical, and accepts CD-ROMs and 650Mb Optical Media inter-changeably in its loading tray.

650Mb PD Drive
only £349
£410 incl VAT

Model	
Plasmon 650Mb PD Drive	£349
Plasmon 650Mb PD Cartridge	£29.95

CD Writers

- Reads at 4x speed and writes at 2x or 4x speed
- Mac & PC compatible
- Backup for less then 1p per Megabyte !

Make and distribute your own audio, video or data CDs quickly and easily straight from your Mac. Each CD will hold up to 650Mb of data and has a shelf life of over 100 years!

Model	
2 speed CD Writer	£429
4 speed CD Writer	£649
Verbatim CDR Disk	£5.95

2 speed CD Writer
only £429
£504 incl VAT

Hard Drives

With seek times as low as 8.6ms and sustained data transfer rates of up to 5Mb/sec, this 2Gb SCSI-2 AV drive is ideally suited to the most demanding of applications.

At this price these drives won't hang around, so CALL NOW!

2Gb Internal AV Drive
only £266
£313 incl VAT

Drive	Internal	External
500Mb SCSI-2		£139
1Gb SCSI -2	£169	£219
2Gb SCSI-2 AV	£266	£309
4Gb SCSI-2 AV	£633	£649
9Gb SCSI-2 AV		£1229
1Gb Iomega Jaz Drive		£329
1Gb Jaz Cartridge		£69.99
2.6Gb Optical Drive		£1095
Verbatim 2.6Gb Optical Cartridge		£44.95

Verbatim 230Mb Optical

- Removable 230Mb optical drive
- Fully compatible with all 3.5" 128Mb and 230Mb MO disks
- Almost as fast as your hard disk – 2Mb per second read time
- Exceptional performance and reliability
- 40 year media life

Model	
Verbatim 230Mb Optical Drive (incl. one Disk)	£299
Verbatim 230Mb Optical Cartridge	£8.95

230Mb Optical Drive
only £299
£351 incl VAT
includes FREE disk

xyratex 540Mb MaxIT

- 10ms access time – fastest removable drive available
- Inexpensive 540Mb cartridges
- Compatible with Syquest 270 and MCD media

About the size of a paperback book, the new MaxIT 3.5 inch removable disk drive is available in Macintosh and PC versions and two colours: Navigator Blue and a limited edition Horizon Yellow.

Model	
Xyratex 540Mb MaxIT Drive	£279
Xyratex 540Mb Cartridge	£39

MaxIT 540Mb Drive
only £279
£328 incl VAT

DAT Drives

- Backup rates of up to 28Mb/min
- You nominate when & what to backup
- Reliable "set it and forget it" operation

Back up over 10Gb of data to one 120m DAT tape quickly, automatically and easily with our high performance DAT drive featuring a high performance Sony mechanism and 2 year warranty.

4-16 Gb DAT Drive
only £599
£704 incl VAT

Model	
4-16Gb DAT Drive	£599
Verbatim 90m DAT Tape	£4.95
Verbatim 120m DAT Tape	£14.95

Please quote code MACF12 when ordering. All prices are for business users and exclude VAT. Next Day delivery from £9 or 48 hour delivery from £5.50. Prices and descriptions are correct at time of going to press, but may change. E&OE. All orders are subject to our terms and conditions which are available on request. We may make our mailing list available to other companies, please let us know if you would like to be excluded. *Leasing prices are based on a 36 month repayment period (APR 19.9%) and are subject to a minimum 10% deposit, status and interest rate variations. © Performance Direct 1996.

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Top 10 Reasons to buy from Performance Direct

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Our people are the experts in their field. You can expect friendly, helpful up front practical advice as well as after sales technical support.

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We are going to be in business at the millennium and beyond. Our turnover is £10 million + now and growing.

Easy Payment
Unlike some of our competitors, we don't apply credit card surcharges and we never, ever charge your credit card until we ship your order. We offer 30 day terms to qualified Corporate, Educational & Public Sector organisations.

Leasing Options
We can arrange leasing for many products. Just call us for details.

Nice People
Time after time, when we ask customers why they prefer to buy from Performance Direct, they say " Because we like the people. They know their stuff; they're helpful, they're happy, they try harder".

FREE Tech Support
We're proud of our "HOT LINE" technical support. We will always respond to your technical problem within 2 hours.

Our Philosophy
We put our customers first. WE CARE.

Authorised Reseller

Buying Advice

Nearly all of your Mac-related purchases run as smooth as clockwork, but you can make them even smoother by following a few simple precautions. Here are some useful tips for sorting things out if they do go wrong...

How to protect yourself

Make sure you shop around for the best price. Although most retail chains tend to stick to a single RRP (recommended retail price), there are exceptions. Most stores run promotions periodically, and many strive to shave a few pounds off normal prices. If you don't have time to visit local dealers, spend half an hour phoning round.

The mail order industry is more competitive, so shopping around is highly recommended. Don't be surprised, though, if all the prices turn out very similar. It's just as important, too, to check whether VAT is included. Some companies display the total price (including VAT) prominently, but others don't – especially those geared up towards supplying business users.

Check, too, for carriage charges. Companies specialising in home and leisure products often include delivery in the price, but business suppliers often don't – and the amount charged can come as a nasty surprise. Make sure you know the costs before you confirm your order.

Other sensible precautions

- Pay by credit card. If you have a problem with the product, you can reclaim its cost from the credit card company, and it's up to them to get the money back from the supplier.
- If you're buying by mail, ring first to confirm price and availability – this may have changed since the ad was printed. Explain what you want the product for and satisfy yourself that you're getting what you need – you can't return something later just because you've changed your mind. Ask what the dealer's policy is should you have problems – few mail-order dealers offer "on-site" service. Find out when you can expect delivery.
- If you're buying in person, check that everything works before you leave the shop. If you've ordered by mail, check the goods carefully when they arrive. If the driver's in a hurry, mark the delivery note "Goods not inspected". If there's any part of the product you're not happy with, don't use it. If you do, you could be deemed to have accepted it.
- Whether you bought it by mail or in a shop, the law says a product must be:

1. "of merchantable quality" (that is, broadly speaking, it must work);
2. "as described" (in the advert or in person – and this criterion applies also if you're buying from a private seller);
3. fit for the purpose for which it was sold or which you specified.

If it fails to meet any or all of these criteria, you are entitled to return the product for a full refund, get compen-

➤

Buyer's guide to best buys

Here's where you can discover the best Macintosh hardware and software buys on the market, based on MACFORMAT's own authoritative, independent product tests. If you want more information on any product, ring the contact listed or refer to our original review (you do file your MACFORMATS, don't you?) – if you need to order an issue you missed, turn to our back issues service on page 128.

The details listed are those of the current version of each product. All prices quoted are list prices (RRPs), *including* VAT – check the ads in this issue for the best current deals on whatever you're interested in. Where we reviewed an earlier version of a product, this is noted in the comment line. Although we quote the ratings from our original review, the comments about each item are based both on that review *and* how we see the product now. *Microsoft Word 6* might be just as good now as when we reviewed it back in MACFORMAT 20, but the competition has come on a long way. We plan to keep re-evaluating classic software in an up-to-date context as part of this section.

Note that some details may have changed since we first reviewed these products – hardware in particular is updated and improved regularly. The information in these listings has been thoroughly checked and is correct to the best of our knowledge as we go to press, but prices and specifications can change at any time. We recommend that you always make enquiries before you buy, to verify that the product you're considering will meet your needs.

The MACFORMAT Buyer's Guide aims to provide you with a one-stop, up-to-date directory of Mac products worth buying. You can help keep it authoritative, by passing on any corrections or updated details you know of. Write to us at the editorial address on page 6, or e-mail **macformat @futurenet.co.uk** with "Buyer's Guide" in the subject line.

Storage media

What do you do when your hard disk is full to the brim? Or when you need to transport hundreds of megabytes of data and there's no fast network link available? External storage devices can provide much-needed extra storage capacity, or a portable storehouse for vast quantities of data.

Name	Price	Rating	Reviewed	Contact	Telephone
Electronique d2 2.6Gb MO	£2,114	83%	MF43	Electronique d2	0171 833 0009
Fast and neat, but is expensive and comes with only basic software and poor documentation.					
Electronique d2 2Gb AV HD	£512	90%	MF43	Electronique d2	0171 833 0009
MACFORMAT Classic: Very stylish external hard disk with minimal documentation; basic driver software, but lightning-fast performance.					
Gasteiner 1Gb HD	£293	90%	MF34	Gasteiner	0181 345 6000
MACFORMAT Classic: Fast, cheap and compact storage medium, but with a fan that gives neighbours the impression you're testing rockets in your bedroom.					
Iomega Zip Drive	£117	81%	MF43	Iomega	0800 973194
Well-established, cheap 3.5-inch 100Mb drive that feels a bit creaky and is looking rather slow in this day and age. It might still end up replacing the floppy disk as the most ubiquitous form of storage.					
MicroNet 2.6Gb MO	£1,527	88%	MF43	MicroNet	01926 470460
Steel-cased MO drive. Speed good but not outstanding, and we had problems mounting a 1.3Mb cart.					
MicroNet 2Gb HD	£586	82%	MF43	MicroNet	01926 470460
Dependable hard disk with excellent software and good but technical documentation. Not especially fast for the price.					
MicroNet Jaz Drive	£469	94%	MF43	MicroNet	01926 470460
MACFORMAT Classic: The successor to the Zip drive uses astonishing 1Gb 3.5-inch cartridges and is fast, portable and cheap. Wonderful. This is a version MicroNet has licensed from maker Iomega.					
Olympus 230Mb PowerMO	£351	91%	MF43	Mac & More	01442 878900
MACFORMAT Classic: Compact 3.5-inch magneto-optical drive that's neat, fast, cheap, and comes with a long-term warranty and good software.					
Olympus 2600 PowerMO	£1,878	89%	MF43	Mac & More	01442 878900
Fast and fairly compact, but pretty expensive compared to its rivals. Comes with a three-year warranty.					

Name	Price	Rating	Reviewed	Contact	Telephone
ONE Tech 2.6 Optical Drive	£1,268	95%	MF34	MacTrix	0181 566 8988

MACFORMAT Classic Pretty fast, quiet, inexpensive and hard to fault. Oh, and the documentation is good too. If only they could do something about the styling. We reviewed the ONE Tech 1.3Gb MO.

Performance Direct 2Gb	£375	92%	MF43	Performance Direct	01784 477477

MACFORMAT Classic Inexpensive and functional-looking hard disk which comes with excellent driver software and performs extremely well.

Quantum Fireball 1.2Gb HD	£269	88%	MF34	Performance Direct	01784 477477

Very quiet, very fast and a good-length SCSI cable. We reviewed the Quantum Fireball 1Gb HD.

SyQuest 230Mb	£270	94%	MF34	SyQuest	0131 339 2022

MACFORMAT Classic Uses 3.5-inch 135Mb cartridges and is extremely fast. The power supply is an annoying blob that sits next to the drive and the manual is tatty. We reviewed the SyQuest EZ135.

TekOptic 1.3Gb MO	£1,110	81%	MF34	TekWare	01384 392121

Huge, fast and supports auto-eject. Takes up a lot of desk space, though, and isn't quiet. A 4Mb cache boosts the speed.

Xyratex 5000 2.6Gb	£1,409	90%	MF43	Performance Direct	01784 477477

MACFORMAT Classic Reasonable performance and good value for money from this big slab of a drive. Good documentation and generous-length SCSI cable.

Monitors

Not all monitors are the same. How sharp is your picture? Are the colours crisp and true to life? What resolutions are available? Is there any distortion? We've tested both 15-inch and 17-inch models from a number of manufacturers, and one thing they have in common is their weight. See page 58 for a look at the light, slim monitors of the future.

Name	Price	Rating	Reviewed	Contact	Telephone
AppleVision 1710	£927	92%	MF40	Apple	0800 127753

MACFORMAT Classic 17-inch monitor with easy controls, overscan (no black borders) and superb picture quality – plus colour calibration software.

CTX 1785S	£587	81%	MF40	CTX	01923 818461

Good picture quality, if a tad unsharp, with good, vibrant colours. Maximum resolution is 1,600 x 1,200 pixels.

Hitachi 17MVX Pro 2	£704	85%	MF40	Hitachi	0800 605 605

Good performance even at high resolutions, although setting up the screen could get fiddly and tedious.

Iiyama Pro 17-inch	£735	89%	MF40	Iiyama	01438 745482

The DiamondTron screen provides excellent quality even at the staggering maximum resolution of 1,600 x 1,200. Loses out slightly on ease of set-up.

Mitsubishi 15HX	£376	82%	MF40	Mitsubishi	01707 276 100

Uses Mitsubishi's own DiamondTron to get close to Trinitron quality and provide an excellent display, with only a slight fall-off at the highest resolution.

Mitsubishi 17HX	£758	83%	MF40	Mitsubishi	01707 276100

Good quality except at the highest resolution, and comes with an anti-moiré function. The manual could be more helpful.

Samsung 15GLi	£406	81%	MF40	Samsung	0800 521 652

Good display for a unit with an FST tube although quality suffered as usual at the highest resolution. Unusually for a 15-incher, you get a degausser.

Samsung 17GLsi	£822	84%	MF40	Samsung	0800 521 652

A 17-inch unit with a maximum resolution of 1,280 x 1,024 and a Trinitron tube. Excellent quality at all resolutions.

Sony 15sfII	£465	91%	MF40	Sony	0181 760 0500

MACFORMAT Classic Unusually for a 15-inch monitor, the Sony provides superb picture quality at all resolutions, thanks to its Trinitron tube, great-looking design and fuss-free setting up.

Sony 15sx	£410	81%	MF40	Sony	0181 760 0500

Sony's budget 15-inch model doesn't have quite the quality of the 15sfII and sports a lower maximum resolution.

Sony 17sfII	£763	92%	MF40	Sony	0181 760 0500

MACFORMAT Classic Picture quality is excellent at all resolutions, setting up is easy and the manual is excellent – a rival to Apple's own AppleVision 1710.

Taxan Ergo Vision 730TCO	£735	84%	MF40	Taxan	01344 484646

This 17-inch monitor offers better picture quality than its 15-inch smaller brother and easier to set up. We reviewed the Taxan Ergo Vision 730LR.

Buying Advice continued

sation for all or part of the value, or get a replacement or free repair, depending on the seriousness of the defect. These are the statutory rights that adverts always say are not affected by any extra guarantees. A dealer can't deny these rights, nor add conditions (like "provided goods are returned to us at your expense within seven days", etc).

How to complain

If you're not happy about something, always contact the supplier first and politely explain your problem. Be patient; if there's some technical problem, it may genuinely take the dealer some time to find the solution. Most difficulties are sorted out at this stage without further fuss. If yours isn't, put your complaint in writing, clearly stating your problem and what you'd like done. Give the firm a reasonable time to reply – say 14 days or so.

If your complaint is not resolved, you may need to take some sort of legal action to enforce your rights. This need not cost you a lot of money. Seek advice from a solicitor (ask about the free advice scheme – you may not have to pay for the initial consultation). Or contact one of the following (check in your local phone directory):

- Citizen's Advice Bureau;
- Trading Standards Office (listed under your local council);
- Office of Fair Trading;
- County Court (ask about the Small Claims procedure).

Product News

(See page 22 for more product news.)

Internal read/write CD drives

TEKDATA

Tekdata claims it's produced the world's first **quad-speed internal read/write CD-ROM drive,** which brings the prospect of mass-market writable CDs closer still. The advantages are enormous – you get the huge storage capacity of CD-ROMs combined with the low cost and durability of compact discs.

However, with magneto-optical drives getting bigger and cheaper, and conventional magnetic media heading the same way, the true value of Tekdata's drives could be as multimedia authoring tools. CD-ROM developers need no longer invest thousands in CD-mastering equipment.

The drive comes in two flavours: the **TEAC CDR-50S** is supplied caseless for internal installation and costs **£969,** while the **CDR-50SKR** is a stand-alone unit supplied with *Toast* CD-writing software for **£1,028.** For more details, call **Tekdata** on **01782 577677** or look up the company's Web site at **http://www.tekdata.co.uk/**

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Product News continued

1,200dpi laser prints

Printer maker **Lexmark** has added a new model to its Optra range. The **Optra R+ Pro** is a 16ppm (page per minute) **600dpi** (dots per inch) **mono laser printer** which can also output at **1,200dpi** at 8ppm. Although 1,200dpi output is regarded as high enough for many professional printing jobs, the Optra R+ is not quite a rival for image-setters, because no laser-produced dots can match the crystal clarity of the photographic process used by image-setters. Nevertheless, 1,200dpi laser output gives dramatically sharp prints which can be used for high-quality proofing, or even camera-ready pages to be used directly by a printer.

The Optra R+ Pro comes with **8Mb of RAM** and can print on thin 60gsm paper right up to heavy 300gsm stock. To find out more, call **Lexmark** on **01628 481500** or visit the Web site at **http://www.lexmark.com/emea/uk/**

Fax software update

FaxExpress is a **single user or network** fax application; version 4.0 sports a new interface, a **FastFax** function (for rapid cover pages and messages) and other enhancements. With the help of a fax-modem and an application like *FaxExpress*, you no longer need a fax machine. Documents can be faxed on-screen while you're working on them, and your Mac can receive faxes too (although, of course, you will need to leave it switched on).

FaxExpress 4.0 costs **£58** for a single users, while multi-user network versions start at **£294.** Contact **Computers Unlimited** on **0181 200 8282** for more details.

Dry colour printing

If you want **colour output** from your printer, the only affordable technology so far has been inkjet. (See the feature demystifying printer types at the start of this month's Buyer's Guide.) Inkjet printers are affordable enough, but they have disadvantages – the ink can smudge readily, for a start.

ALPS may have the solution, in the form of its **MD2010 colour printer.** Using a patented **micro-dry process,** the MD2010 outputs at 600dpi in colour and 1200dpi in mono. Its colour output is done via four-colour tape cartridges, but you can also get gold, silver and metallic blue and red cartridges. ALPS claims its print-outs are **smear-proof, waterproof** and

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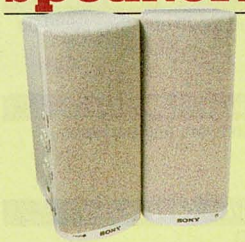
Speakers



Any hi-fi expert will tell you that the weakest link in the sound chain is the speakers. Budget models supplied with your Mac might not break the bank, but they might break your eardrums. We found out which speakers do justice to the CD-quality audio that your Mac can pump out.

Name	Price	Rating	Reviewed	Contact	Telephone
Goodmans Active 70	£40	85%	MF40	Goodmans	01705 673 673

Not as loud as the 80W 'PMPO' suggests, but good quality CD audio output and game effects for the money. We reviewed the Goodmans Active 85.

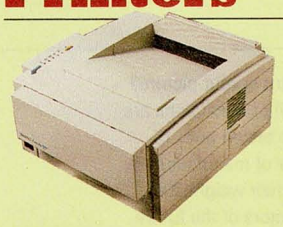
Sony SRS-PC91	£128	87%	MF40	Sony	0181 760 0500

Pretty loud with very good quality for both music and games, even if the bass control is more of a treble-limiter. We reviewed the Sony SRS-PC9.

Yamaha YST-M15	£69	85%	MF40	Yamaha	01908 366700

Very loud and huge amounts of bass, good high end and a bit of a gap in the middle – but they still sound great.

Printers



Are you shopping for a mono printer or colour? Portable or desktop? PostScript or non-PostScript? Inkjet or laser? We've reviewed dozens of printers for every need, and here is our pick of the best. Don't forget to shop around for the best prices, since these change continually (usually downwards). For more on what to look for, see MACFORMAT 38.

Name	Price	Rating	Reviewed	Contact	Telephone
Apple StyleWriter 1500	£275	90%	MF38	Apple	0800 127753

MACFORMAT Classic For the price, excellent colour performance even on plain paper. Its budget background begins to show on coated and glossy papers, though.

Apple StyleWriter 2500	£359	84%	MF38	Apple	0800 127753

A big improvement on its predecessor, the 2400, but not quite in the same league as colour rivals from HP and Epson.

Citizen PN60	£340	82%	MF27	Citizen	01753 584111

Minute portable printer that can output in colour. The size makes the controls fiddly, though, and performance is suspect.

Epson EPL-5500	£469	89%	MF39	Epson	01442 61144

Compact and light 600dpi PostScript printer with a useful 5Mb of RAM. Documentation is turgid, though, and you'll need to buy a lead for your Mac.

Epson EPL9000	£2,055	84%	MF29	Epson	01442 61144

A3 600dpi PostScript printer that provides good quality output from a surprisingly compact box.

Epson Stylus Pro	£513	90%	MF38	Epson	01442 61144

MACFORMAT Classic Built like a breeze block, but offers stunning smoothness and resolution, even though greens turned a bit muddy. Almost as good as a dye-sub printer.

Fargo PrimeraPro	£1,585	84%	MF38	Bannerbridge	01268 419101

Thermal wax output is harsh and grainy, but the dye-sub output has superb definition and colour that may prove good enough for match printing.

FotoFUN! Printer	£493	87%	MF31	Bannerbridge	01268 419101

Affordable, good quality dye-sub colour output. Takes up little space but only prints out 6-inch x 4-inch snapshots.

HP LaserJet 5MP	£1,198	95%	MF29	Hewlett Packard	0990 474747

MACFORMAT Classic 600dpi PostScript laser printer with excellent greyscale and resolution enhancement for remarkable output quality at the price.

HP DeskJet 340	£235	85%	MF27	Hewlett Packard	0990 474747

Portable 300dpi inkjet with colour capability and excellent output quality. Clear leader amongst the portables at this price. We reviewed the HP DeskWriter 320.

HP 870cxi	£494	92%	MF38	Hewlett Packard	0990 474747

MACFORMAT Classic First-rate colour balance, excellent contrast and very good performance on plain paper is combined with good value. It's a winner! We reviewed the HP 850C.

Lexmark Optra R Plus	£1,434	84%	MF29	Lexmark	01628 899 088

Magnificent 1,200dpi PostScript output from a device that could crush your desk. Expect long print times. We reviewed the Lexmark Optra R.

Name	Price	Rating	Reviewed	Contact	Telephone
NEC SuperScript 3000	£1,115	88%	MF35	NEC	0345 404020
Three different printing technologies at a bargain price, but second-division quality and long print times.					
Tektronix Phaser 140	£1,351	88%	MF38	Aztec Associates	01274 590 555
Affordable PostScript colour printer. Colour and definition nearly on a par with non-PostScript models.					

Modems

If you want to connect to the Internet, to bulletin boards, on-line services or even friends and acquaintances via your Mac, you need a modem. The faster the modem, the cheaper it will be to run and the less time you'll spend twiddling your thumbs. And these days, speed doesn't cost that much.

Name	Price	Rating	Reviewed	Contact	Telephone
Accura Message Modem	£219	84%	MF39	Hayes	01252 775577
Big, ugly, difficult and expensive. At least it works well. And being a Hayes, this 28.8K modem should work with just about any comms software. We reviewed the Hayes Optima.					
Global Village Platinum	£234	92%	MF39	InfoBank	0181 991 0578
MACFORMAT Classic The Teleport Platinum is a slick, fast and stylish 28.8K modem with a good manual, fax and OCR software. You get a progress bar even while it's running in the background.					
Lasat Unique Safire	£187	84%	MF39	Lasat	0181 899 1765
It's tiny, it looks cool and it comes with a ten-year guarantee – but no comms software, alas. Speedy and reliable, this 28.8K job tolerates line noise well.					
Motorola 3400	£150	90%	MF39	Gasteiner	0181 345 6000
MACFORMAT Classic Uncomplicated and easy to set up 28.8K modem, but with rather basic fax software. The manual is indifferent but the modem itself is fast and reliable.					
SupraExpress 33.6	£175	89%	MF39	CU	0181 358 5857
Plain-looking 28.8K modem powered by your ADB port. Dialling can be slow, but faxes are reliable. We reviewed the SupraExpress.					
US Robotics Mac & Fax	£199	89%	MF39	US Robotics	0800 225252
The Mac & Fax Sportster is a fast and reliable 28.8K modem, but no straight-through port to plug a telephone into if you only have one line. Styled like a clock radio.					

Digital input

How do you get analogue data from the real world into digital data on your Mac? Here is MACFORMAT's pick of scanners, digital cameras and related software. For more details on digital imaging, see our cover feature in MACFORMAT 41.

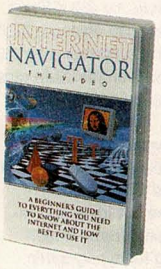
Name	Price	Rating	Reviewed	Contact	Telephone
Apple QuickTake 150	£525	72%	MF41	Apple	0800 127753
Indifferent picture quality and flash accuracy with this digital camera. You do get a useful image editing program.					
Epson GT-5000	£469	81%	MF41	Epson	01442 61144
This scanner's a little fuzzy but has reasonable colour reproduction. A little lacking in features, with poor documentation.					
Kodak DC-20	£353	91%	MF41	Kodak	0800 281487
MACFORMAT Classic Pretty low-resolution digital camera but extremely easy to use and fun too. Comes with some basic image editing software and other useful goodies.					
Kodak DC-50	£1,058	87%	MF41	Kodak	0800 281487
This camera's higher price pays off with crisp images and deep colours. You get a zoom lens, and you can fit storage cards up to 40Mb in size.					
Linotype-Hell Saphir	£3,819	89%	MF41	Linotype-Hell	01242 285065
Superb quality scanner with excellent colours and incredible sharpness. But then you'd be entitled to expect it at the price.					
Microtek Scanmaker E3	£328	86%	MF41	CU	0181 358 5857
At 600dpi, images were a bit fuzzy and lost subtlety, but overall performance is very acceptable for a scanner of this price.					
Umax Vista S6E	£499	85%	MF41	IMC Distribution	01344 872 800
Very fast scanner but with a little fuzziness and difficulty with greens. Otherwise quality was good, given the price.					
Visioneer PaperPort	£293	86%	MF28	CU	0181 358 5857
Tiny A4 mono scanner that can sit between your keyboard and Macintosh – sheets are rolled in and out.					

Product News continued

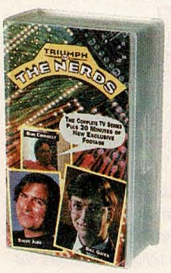
sharper than those from comparable inkjets, because they don't use inks which are absorbed into the paper.

This new technology is affordable, too; at **£469** the MD2010 competes with top-class inkjets. You can find out more from **Rotec Distribution** on **01604 402012.**

Caught on video



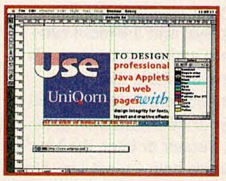
Perplexed by the complexities of the **Internet?** Can't decide whether it's the dawn of a new age of communication or the techno-detritus of a mushrooming geek culture? If you'd like to try the Internet before you buy into it, a new **video** called ***Internet Navigator*** could help. Costing **£9.99,** it tells you about service providers, e-mail, newsgroups and searching the Net.



You might also want to look out for the ***Triumph of the Nerds*** double-box set, which costs **£14.99**. Containing all the programs in the original **TV series** (shown on Channel Four) plus 20 minutes of new footage, it enables you to peep inside the minds of boffins like Bill Gates, call "hello" and see if there's anybody in there. All the pioneers of the computing industry are here, including Steve Jobs (we like him), Paul Allen (we don't know him), Bill Gates (nice jumper) and Steve Wozniak (great bloke), together with a whole bunch of people who helped develop (if that's the right word) the PC.

Both videos are on sale now from major High Street video stockists, or you can contact the publisher **Visual Corporation** on **0171 439 1188.**

A new era in Web publishing?



DTP application **UniQorn,** from **Soft-Press Systems,** will use **Java applets**

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Product News continued

to create **Web pages** that look identical to displayed and printed versions. Called **MoQa files**, these applets can form pages on their own, or be built into the HTML code used in standard Web pages. You can view the results using any **Java-compatible browser** (such as *Netscape Navigator 3.0)* without any additional plug-ins.

Although HTML is growing more powerful and versatile, it's still difficult to create Web pages with anything like the complexity and fine control seen in magazine pages, for example. SoftPress Systems clearly hopes *UniQorn* can change that.

UniQorn first appeared in May 1996, boasting some innovative and powerful design tools thanks to its use of Apple's **QuickDraw GX** imaging system. It's a professional frame-based application offering full typographic control, colour separations, trapping and other professional publishing tools that threaten to rival those of industry leaders *QuarkXPress* and *Adobe PageMaker.* You can find out more about UniQorn from **SoftPress Systems** on **01993 882588** or visit the Web site at **http://www.softpress.com/**

All-in-one Net access

Internet service provider **Zoo Internet** is providing Internet access in an **all-in-one box** to be sold by retailers for £40. The box includes *Netscape Navigator,* e-mail and newsreader software and, Zoo claims, easy **walk-through instructions** for getting on-line.

The other side to the package is Zoo's subscription charges. These can be as low as **£6.95 per month,** which includes four hours of free on-line time. Additional time is charged at 3p per minute, but there's a **charge-capping system** in place that prevents people spending more than £20 per month.

As well as a Regular Access account (£14.50 per month for unlimited Net access) there's a **Lifelong Access option –** for £400 you can surf the Net with Zoo for the rest of your days (or the company's).

You can find out more about Zoo's Internet package and its subscription charges on **0181 961 7000.**

Big display bundle

The bigger your **monitor,** the more pixels it displays; and the more **processing time** and **memory** it needs to draw screens. Similarly, displaying thousands of colours demands a lot more from your hardware than producing 256. Sooner or later, the Mac's hardware needs help – most new Macs can handle thousands of colours on a 17-inch monitor, but beyond that (to

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Office

Most Macs are used at one time or another in the office or study, using worthwhile applications like word processors, databases and spreadsheets. There are many related productivity applications, too, like personal organisers and presentation packages. Here's our pick of the best.

Name	Price	Rating	Reviewed	Contact	Telephone
Act 2.5	£199	86%	MF36	Symantec	01734 814 230

Feature-heavy contacts manager that works well in sales offices, but lacks flexibility as a personal organiser.

C•A•T	£222	81%	MF32	Chang Labs Europe	01285 644403

An endlessly customisable personal office organiser that can cope with correspondence, client lists and even invoicing.

ClarisImpact 2	£152	86%	MF34	Claris	0181 756 0101

Combines spreadsheet functions with charting, outlining and DTP for the ultimate low-end business presentation suite.

ClarisWorks 4.0	£152	92%	MF31	Claris	0181 756 0101

MACFORMAT Classic The Mac's standard all-in-one office suite. Inexpensive yet very powerful in the right hands, and highly flexible too. Get it and use it.

Excel 5	£220	87%	MF18	Microsoft	0345 002000

The only professional spreadsheet package on the Mac boasts 3D documents, pivot tables and more power than a Saturn 5. Includes outlining, database functions and more.

Expresso 1.0	£20	89%	MF31	Softline	0181 401 1234

Personal organiser that makes up for in charm and value what it lacks in high-powered relational data-handling.

FileMaker Pro 3.0	£234	96%	MF37	Claris	0181 756 0101

MACFORMAT Classic An excellent database that's been tweaked and tuned, and is now fully relational. Be very sure you need more power before shopping elsewhere.

Let's KISS	£153	91%	MF41	Softline	0181 401 1234

MACFORMAT Classic As a piece of software design, so far ahead of traditional spreadsheets and feeling so right that you wonder why no-one thought of it sooner.

Organizer 1.0	£58	84%	MF31	Claris	0181 756 0101

Efficient and elegant (even slightly prim) personal organiser. Effective and affordable, though sometimes confusing.

Rhymes and Cliches	$65	78%	MF37	Eccentric Software	00 1 206 628 2687

A program for finding rhymes and cliches – a daft idea until you actually sit down and use it, when it proves rather handy.

TextBridge Pro	£410	77%	MF41	Xerox	0118 981 4230

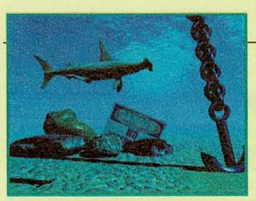
Masses of power and features for serious users, but like any OCR software, it depends on the quality of the original scan.

Up-to-Date & Contact 3.5	£116	89%	MF31	Now! Software	01525 237001

Dynamically-linked duo of contacts manager and diary. Occasionally a little too complex for its own good.

Word 6.0.1	£220	92%	MF20	Microsoft	0345 002000

MACFORMAT Classic The world's favourite word processor has a monumental feature list but a bewildering array of controls, toolbars and gadgets that make it feel simply top-heavy. We reviewed *Microsoft Word 6.0.*



Graphics

From image-manipulation to professional illustration to 3D design and raytracing, here's our pick of the top Macintosh graphics packages.

Name	Price	Rating	Reviewed	Contact	Telephone
Bryce 2	£234	93%	MF38	Principal	01706 832000

MACFORMAT Classic 3D landscape creation tool that's more versatile than its predecessor and can create indoor scenes too. Easy (by the standards of 3D software) and capable of breathtaking results.

Dabbler 2	£59	90%	MF35	CU	0181 358 5857

MACFORMAT Classic Natural media painting program for those awed by multi-layered dialogues and complex options. Backed up with lots of CD-ROM resources.

Extreme 3D 1.0	£645	86%	MF39	CU	0181 358 5857

Brilliant Bézier modelling, visible light beams and fast rendering. A steep learning curve but good documentation.

FreeHand 5.5	£529	80%	MF33	CU	0181 358 5857

A big step forward from previous versions and still superior to arch-rival *Illustrator.* Some minor gripes remain, though.

Illustrator 6	£376	80%	MF37	Adobe	0181 606 4000

The latest version of this vector-based professional illustration package is nearly on a par with its great rival *FreeHand.*

- Why buy from Jigsaw?...
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- Friendly expert staff
- Apple & Microsoft Training Centre
- Further/Higher Education Specialists
- Next Day Delivery from £6.99

- Competitive Business Finance
- Apple Authorised Service Provider
- MacUser 1995 Dealer Focus Winner
- Networking Specialists
- Excellent Technical Support
- 4 & 8 hour Maintenance Contracts
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MacOS COMPATIBLES ARE HERE!...

UMAX Apus PowerPC™

MacOS

AFFORDABLE! POWERFUL! UPGRADABLE!

UMAX Apus 2000 603e/120/CD

CPU UPGRADABLE TO 240MHZ

- 16Mb/850MbHD/8xCD-ROM 120MHz PowerPC 603e
- 16Mb on-board RAM expandable to 272Mb - 2 DIMM Slots
- Built-in LocalTalk, floppy & Fast Internal/External SCSI
- 2 years Manufacturers Warranty
- FREE ClarisWorks 4.0, Translators & FWB HD/CD Toolkit
- 1 ADB port, 1 Mac monitor port & 2 Geoport serial ports
- Optional 256K Level 2 Cache upgradable to 1Mb
- 2 PCI slots, one full length & one half length
- Built-in 32bit graphics, 1Mb VRAM, 16 bit colour
- FREE Keyboard and mouse included
- Includes MacOS 7.5.3 UK software & manuals
- Built-in 16bit Stereo SRS 3D surround sound

PowerPC™

	16Mb	24Mb	36Mb	48Mb	64Mb
850Mb HD	£999	£1,029	£1,069	£1,149	£1,239

inc. VAT £1,174

£999 exVAT

£39.54 per month* Business Finance

UMAX Apus 2000 603e/166/CD/L2

CPU UPGRADABLE TO 240MHZ

- 16Mb/1.2GbHD/8xCD-ROM 166MHz PowerPC 603e
- 16Mb on-board RAM expandable to 272Mb - 2 DIMM Slots
- Built-in LocalTalk, floppy & Fast Internal/External SCSI
- 2 years Manufacturers Warranty
- FREE ClarisWorks 4.0, Translators & FWB HD/CD Toolkit
- 1 ADB port, 1 Mac monitor port & 2 Geoport serial ports
- Built-in 256K Level 2 Cache upgradable to 1Mb
- 2 PCI slots, one full length & one half length
- Built-in 32bit graphics, 1Mb VRAM, 16 bit colour
- FREE Keyboard and mouse included
- Includes MacOS 7.5.3 UK software & manuals
- Built-in 16bit Stereo SRS 3D surround sound

PowerPC™

	16Mb	24Mb	36Mb	48Mb	64Mb
1.2Gb HD	£1,299	£1,319	£1,349	£1,449	£1,549

inc. VAT £1,526

£1,299 exVAT

£51.42 per month* Business Finance

UMAX Apus 3000 603e/200/CD/L2

CPU UPGRADABLE TO 240MHZ

- 16Mb/2.1GbHD/8xCD-ROM 200MHz PowerPC 603e
- 16Mb on-board RAM expandable to 272Mb - 2 DIMM Slots
- Built-in LocalTalk, floppy & Fast Internal/External SCSI
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"When I buy a scanner, its going to be this one." UMAX Vista S6E, Winner of Editor's Choice Award, THE MAC & MacWorld - July '96

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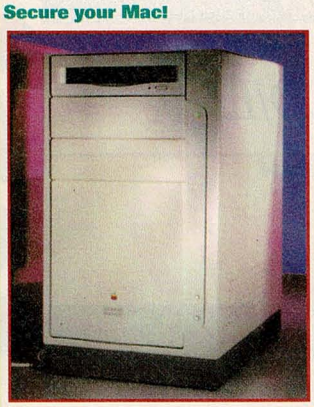
Product News continued

handle millions of colours or bigger monitors), they need help in the form of a **graphics accelerator. Mentor Computer Systems** has one solution, bringing together large-screen **Mitsubishi monitors,** which use that firm's highly-rated Diamondtron technology for clarity, colour and vibrancy, with graphics card maker Number Nine's **Imagine 128** card. The card redraws your screen much faster than your Mac could on its own, while the extra RAM that comes with the card increases the number of colours your screen can display at a specific resolution.

The monitor-plus-card bundles start at **£1,222** for a **17-inch monitor** and **Imagine card** with **4Mb RAM;** with a **21-inch monitor** and **8Mb** card selling for **£2,440,** giving millions of colours (photographic quality) at a resolution of 1,600 x 1,200 pixels.

To find out more, call **Mentor** on **01582 483381.**

Secure your Mac!



Mygate's new **PowerTrap** range offers **steel shells** that encompass your Mac and clamp it securely to the work surface. And they're not just an ugly collection of angle iron – they've been styled specifically to fit and to complement specific Mac models.

If you're worried about someone lifting your precious Macintosh, call **Mygate** on **0181 318 1424.**

New 17-inch Diamondtron

Mitsubishi has announced a new **17-inch colour monitor:** the **Diamond Pro 87TXM** offers very high-quality images, the firm says, as well as an unusually compact design. It's aimed at **designers** and **graphics professionals** who need the very highest display quality and accuracy; monitor and colour **calibration software** is included. Coming with a **three-year warranty,** the 87TXM is expected to sell for around **£821.** Call **Mitsubishi** on **01707 276100** for more details.

Business bundle

If you find yourself using several different applications to manage your **business**, it might be worth taking a look at the ***Modulus*** range from Modulus Software. The *Modulus* suite combines **diary** and **contact management**, **invoicing** and **accounts.**

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Name	Price	Rating	Reviewed	Contact	Telephone
Infini-D 3.5	£469	85%	MF42	Gomark	0171 731 7930
3D modelling, rendering and animation package that's easy to use but produces rather crude and mechanical results.					
Kai's Power Goo	£58	90%	MF41	Principal	01706 832000
MACFORMAT Classic Provides many of the image manipulation tools of professional graphics applications, but is cheaper than many *Photoshop* plug-ins! Possibly the best fun you'll have with a graphics package.					
LightningDraw GX 1.01	$351	75%	MF36	Lari Software	00 1 919 968 0701
Lots of QuickDraw GX tricks packed into a low-end drawing package that's quirky and somehow dissatisfying.					
Live Picture 2.5	£934	85%	MF38	IMC	01344 871 329
A kind of super-*Photoshop* with an unusual interface but excellent compositing. Not as RAM-hungry as *Photoshop.*					
Overdrive 1.0	£176	82%	MF43	IMC	01344 871344
Novel image format used here for solid compositing features at a reasonable price; let down slightly by the user interface.					
Painter 4	£469	91%	MF35	CU	0181 358 5857
MACFORMAT Classic Blends traditional painting tools and media with mouse pointers and Bézier curves. Too arty for some, too amateur for others, but we rate it.					
PhotoDeluxe	£88	85%	MF39	Adobe	0181 606 4000
Innovative and powerful photo manipulation package at a bargain price – if you've got the hardware needed to run it.					
PhotoFix	£122	83%	MF24	Linographic	01252 376103
Photo manipulation software that does less than *Photoshop* but costs less and uses less RAM. Compares rather well.					
Photoshop 3.0	£738	90%	MF22	Principal	01706 832000
MACFORMAT Classic The market-leading professional image-manipulation program. Offers an unrivalled range of tools and plug-in effects, but needs serious amounts of RAM.					
Ray Dream Studio 4.0	£222	89%	MF39	Principal	01706 832000
Easy to use with brilliant modelling and Scene Wizards, but very slow. Clear documentation and a bargain price.					
SmartSketch 1.0	£60	89%	MF30	CGS Computerbild	0181 679 7307
Inexpensive vector or bitmap art package that provides many professional effects. A bit of a jack of all trades, though.					
StrataStudio Pro 1.75	£1,169	92%	MF34	Principal	01706 832000
MACFORMAT Classic Creates complex geometries, resulting in detailed and realistic stills and animations. It's at the forefront of 3D software technology.					
xRes 2	£645	91%	MF38	CU	0181 358 5857
MACFORMAT Classic Heavyweight graphics package aimed at a market beyond *Photoshop,* but using less RAM. Wonderful interface but no compositing.					

Graphics resources

As well as fully-fledged graphics applications, there are numerous sources of royalty-free clip art for use in your publications or designs. And in addition to the image-manipulation effects available within graphics applications, there are numerous plug-ins for use with *Photoshop* and compatible applications.

Name	Price	Rating	Reviewed	Contact	Telephone
ClickArt Famous Mag Cartoons 2	£29	90%	MF34	MacLine	0181 401 1111
MACFORMAT Classic 500 vector-based royalty-free syndicated cartoons for £30? A cracker of a collection containing some good artwork and gags – a real bargain.					
Intellihance	£128	90%	MF31	Principal	01706 832000
MACFORMAT Classic An "intelligent" *Photoshop* plug-in that automatically sorts out brightness, contrast, sharpness and more in scans. Rather good.					
KPT Convolver	£152	90%	MF25	Principal	01706 832000
MACFORMAT Classic Excellent image manipulation software that doesn't do anything *Photoshop* can't but makes it easier and cheaper for you. Also includes *Color It,* an excellent starter image editing program.					
KPT Power Photos III	£152	90%	MF40	Principal	01706 832000
MACFORMAT Classic Five CDs containing 375 photos, all scanned at ultra-high resolution and prepared for publication. A seriously desirable product.					
KPT Vector Effects	£152	92%	MF29	Principal	01706 832000
MACFORMAT Classic Supplies a whole range of spectacular and useful effects for *Illustrator* and *FreeHand* vector images. Easy to use, but some effects are not *so* useful.					
Terra Forma	£464	90%	MF36	Andromeda	01235 527303
MACFORMAT Classic Five-CD set of ready-coloured and pre-traced maps either for immediate use or for retouching. Gorgeous quality and superb attention to detail.					

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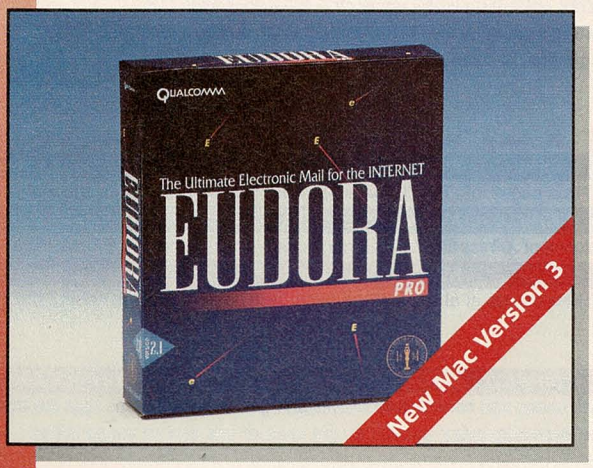

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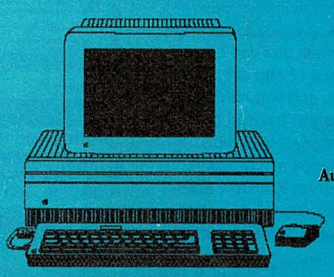

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Product News continued

Modulus Silver adds stock and order processing, while the top-of-the-range ***Gold*** edition gives you full networking capabilities. You can find out more from **Modulus** on **0345 051051.**

Stories for kids

Anglia Multimedia has released four **children's CD-ROMs** with a **biblical theme.** ***Jonah and the Whale, Prodigal Son, Joey and his Coat*** and ***Danny and the Lion*** are available for two age ranges (**3-6 year-olds** and **7-10 year-olds).** They're interactive stories with some additional puzzles and games, priced at **£20** each. Anglia has also released ***Eureka,*** a **CD-ROM** full of **inventions** and **discoveries**, also costing **£20**. Budget-conscious parents might be more interested in Anglia's new ***Naughty Stories*** series at **£10** per **CD-ROM**. Each disc contains two stories aimed at **3-7 year-olds**. You can find out more by calling **Anglia Multimedia** on **01603 615151** or visiting the Web site at **http://www.anglia.co.uk/**

Cheaper Zips

Iomega, the company that brought the world the highly-rated **Zip drive** and **Jaz drive**, has reduced its prices and introduced some new products. You can now buy a **Zip drive**, which uses 100Mb cartridges, for an RRP of **£152**, and there's a new **£147** version for **installing internally.** To find out more, call **Iomega** on **0800 973194** or take a look at the company's Web site at **http://www.iomega.com/**

Ready-made artwork

What do you do when you can't find quite the right piece of **clip art** to illustrate a document, and you can't create your own because you have all the drawing skills of a gnat? Well, you might try taking a look at ***Stencil It,*** the new program form **Kaetron Software Corporation**. *Stencil It* has **predrawn images** (called stencils) which

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Desktop publishing

Professional print publishing is still dominated by *QuarkXPress* and *PageMaker,* but this category also includes Web page design, electronic publishing in general, and various publishing utilities.

Name	Price	Rating	Reviewed	Contact	Telephone
BeyondPress 2.0	£570	85%	MF40	XChange	0171 637 2966

Easy to use *XPress* XTension for converting *XPress* pages into HTML. No support for font tags or frames, though.

HexWeb XT	£410	73%	MF40	XChange	0171 637 2966

XPress XTension that's good at converting batches of *XPress* files to Web pages, but lacks some bells and whistles.

PageMaker 6	£605	91%	MF32	Adobe	0181 606 4000

MACFORMAT Classic It can do everything that *QuarkXPress* can do at about half the price. Text-handling is a bit creaky, but layout and design is clean and simple.

PageMill	£88	90%	MF35	Adobe	0181 606 4000

MACFORMAT Classic At last you can forget about HTML codes and concentrate on designing Web pages. Some tags are missing and purists will moan about some eccentric codes, but you do get ease-of-use and an image editor.

QuarkXPress 3.32	£1,169	88%	MF25	CU	0181 358 5857

The market-leading professional DTP package marches on relentlessly with its excellent text-handling and XTensions. We reviewed *QuarkXPress 3.31.*

UniQorn 1.01	£1,052	80%	MF40	Principal	01706 832000

QuickDraw GX DTP application that does things *XPress* and *PageMaker* can only dream of. Needs hardware power,

Internet & Comms

These days communications and the Internet are virtually synonymous – and the latest generation of Web browsers handle e-mail, ftp, usenet and anything else you might want to do on the Net. So which one do you choose, and how do you keep your Web addresses organised?

Name	Price	Rating	Reviewed	Contact	Telephone
Em@iler 1.0.1	£58	82%	MF42	Claris	0181 756 0101

Neat and attractive e-mail application that handles mailboxes, enclosures and address books painlessly.

Eudora Pro 3	£75	83%	MF42	Electric Mail	01223 501333

Very powerful e-mail application with a new, friendlier interface that doesn't quite hide some murky technical depths.

Internet Explorer 2	Free	78%	MF39	Microsoft	0345 002000

Microsoft's browser isn't as good as *Netscape,* but it is free. Version 3 may narrow the gap, when it eventually arrives.

Netscape Navigator 3	$49	94%	MF39	Netscape at http://home.netscape.com/

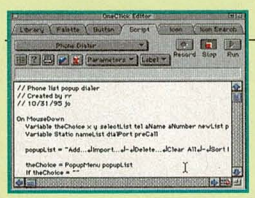
MACFORMAT Classic The world's favourite Web browser may slow up now and again, but does absolutely everything rather too well for comfort. We reviewed *Netscape Navigator 2.0.*

Snap Mail 2 (5-user pack)	£206	90%	MF42	Softline	0181 401 1234

MACFORMAT Classic Simple and fun networked e-mail software that requires no servers, administrators or complex set-up procedures. Perfect for small, anarchic offices.

WebArranger	£81	85%	MF41	CE Software	01277 202450

A personal organiser for Net users with automated downloading, FTP-ing, Web page watching and other clever tricks.



System enhancers

Whatever Apple does to the System and Finder, there will always be programmers who think they've got a better idea – either a quicker, more efficient way of doing something, or an enhancement to the Mac's interface that makes it better-looking, more user-friendly or simply a lot more fun.

Name	Price	Rating	Reviewed	Contact	Telephone
Dogz	£15	72%	MF39	Mindscape	01444 246333

Desktop dog that can learn tricks, attack people trying to open your files and even bark at the moon in screensaver mode.

The Little Mac Toolkit	£35	89%	MF28	Addison Wesley	01279 623 623

A disc packed with useful (and not-so-useful) shareware and freeware combined with a very good manual.

OneClick	$89	91%	MF35	WestCode Software	00 1 619 487 9200

MACFORMAT Classic Create floating palettes for launching applications and opening files, and set up short-cut macros for your favourite applications. Real power.

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PowerBook Duo	LaserWriter Select 300	Performa 6200CD,6205CD,6214CD,
PowerBook 150	LaserWriter Select 310	6216CD,6218CD
PowerBook 5300 Series	LaserWriter Pro 810	6220CD,6230CD, 6300CD
Quadra 900, 950	Colour LaserWriter 12/600PS	Quadra 605, 610, 630, 650, 660AV
Quadra 800, 840AV, Workgroup Server 80;	Personal LaserWriter NTR	Workgroup Server 60, MAC TV
Workgroup Server 6150, 8150, 9150	LaserWriter NTX, NTX-J	PowerMac 6100/60, 7100/66, 8100/80
Workgroup Server 95	LaserWriter Pro 600, 630	PowerMac 6100/60, 6100/66, 6100/66AV;
LC, LCII, Performa 200, 400, 405, 410, 430	LaserWriter 16/600PS	PowerMac 7100/66, /66AV, /80, /80AV;
IICX	LCIII, LC475, LC520, LC550, LC575, LC630	PowerMac 8100/80, /90, /100, /100AV, /110;
IICI	Centris 610, 650, 660AV	Performa 6110CD, 6112CD, 6115CD,
II FX	Performa 450, 460, 466, 467, 475, 476	Performa 6117CD, 6118CD
II, IIX	Performa 550, 575, 577, 578, 630,631CD	PowerMac 7200,7500,7600,8200,8500,9500

Decide how much more memory you need - Remember your Mac may require upgrading in sets of 2 or 4 (eg. for 16Mb you need 2 x 8Mb modules)

Memory Type / Size	1Mb	4Mb	8Mb	16Mb	32Mb
30 Pin	£8	£22	-		-
72 Pin Non Parity	-	£16	£29	£72	£157
168 Pin DIMM	-	-	£45	£89	£174
Notebooks	-	£59	£99	£159	£309

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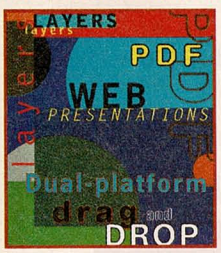
Product News continued

you can redraw and modify to suit your needs. On top of this, though, you get the ability to add **hyperlinks** to other diagrams and even other applications. What's more, *Stencil It* diagrams are **Internet-ready** – you can export them as finished HTML pages, complete with **working links, image maps** and **graphics**. The price will be around **$99** in the States, and that's currently where you'll have to call to find out more. **Kaetron** is on **00 1 713 298 1500,** or you can visit Kaetron's Web site at **http://www.kaetron.com/**

Bigger smaller drives

Storage media specialist **Electronique d2** has announced a new single-sided **3.5-inch magneto-optical disk** with a capacity of **640Mb**. 3.5-inch MO disks are little larger than ordinary floppies, yet the new d2 disk has the **storage capacity** of a **CD-ROM.** Because data is written to MO disks at high temperatures, with a laser head that never actually comes into contact with the disk, MO disks are extremely **durable** and **resistant to magnetic fields.** The d2 MO 640 drive will also work with existing **230Mb** and **128Mb** optical cartridges, and is expected to sell for around **£622.** You can find out more from **Electronique d2** on **0171 833 0009.**

Persuasion has more for the Web



Publishing giant **Adobe** is very busy at the moment. As well as announcing new versions of DTP package ***PageMaker*** and image manipulation application ***Photoshop,*** it's also revamped its presentation package ***Persuasion.*** Using *Persuasion,* you can create on-screen **slideshows, interactive tutorials,** printed **training aids** and more.

With the release of **version 4.0,** however, comes a whole list of **Internet tools.** You can now drag-and-drop live Web site addresses onto your presentation to create finished Web documents in the Portable Document Format (a format invented by Adobe that anyone with the appropriate free software can open).

Other enhancements for *Persuasion 4.0* include the ability to drag-and-drop *Photoshop* and *Illustrator* files into your presentation, **greater integration,** a similarity of feel between *Persuasion* and Adobe's other products, and improved **cross-platform support.** Your presentations can now be used on either Mac or PC, with the same images, movies, sounds and animations working on either system. You also get ***Acrobat Distiller 3.0*** (for

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Name	Price	Rating	Reviewed	Contact	Telephone
PopupFolder 2.0	£46	87%	MF35	Softline	0181 401 1234

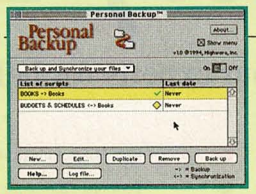
Hierarchical folder menus up to 16 levels deep both in the Finder and in **Find** and **Save** dialogue boxes. Paradise!

Quick 'n' Easy	£29	83%	MF30	Now! Software	01525 237001

A trio of low-cost, high-polish utilities including folder and WYSIWYG font menus, and enhanced **Open** and **Save** boxes.

RAM Doubler 2	£71	92%	MF43	CU	0181 200 8282

MACFORMAT Classic As long as you have a modern Mac, *RAM Doubler* is such an essential utility you'll wonder how you coped without it.



Security & Diagnostics

You shouldn't be worrying about *if* your Mac goes wrong, but *when.* Problems can be irritating but bearable, or they can be nightmarish total breakdowns that threaten your business and your sanity. Here are some applications to help you back up your data, prevent unauthorised access and sort out problems when they do occur.

Name	Price	Rating	Reviewed	Contact	Telephone
Conflict Catcher 3	£81	81%	MF29	Softline	0181 401 1234

Automated conflict-catching walk-throughs combine with Extension management that include fonts and start-up items.

LockSmith	£41	89%	MF22	Hi Resolution	01892 891291

System Extension which uses a private folder for things you don't want other people to meddle with.

Norton Utilities 3.2	£116	88%	MF42	Symantec	01734 814 230

Superficial enhancements to a dated application that's not even PowerMac-native yet. Still market leader... for now.

Personal Backup	£46	92%	MF29	Softline	0181 401 1234

MACFORMAT Classic Automated back-up scripts that can run near-invisibly in the background at pre-set times. Can also synchronise contents of folders.

Retrospect	£222	88%	MF22	Principal	01706 832000

Sophisticated back-up application with automated scripts, filters for specific file criteria and other goodies – at a price.

Music & Audio

The Macintosh has long been one of the mainstays of the professional music industry, and boasts a wealth of high-quality software for MIDI, sequencing, scorewriting, sound editing, and direct-to-disk recording. Here's the software we rate.

Name	Price	Rating	Reviewed	Contact	Telephone
Circle Elements	£30	83%	MF28	Time and Space	01442 870681

Sample-based song construction kit that comes with over 1,000 samples. Great for beginners.

Cubase VST	£329	94%	MF39	TSC	0171 258 3454

MACFORMAT Classic A major step forward in the development of affordable digital audio software. Packed with features, easy to use and great value.

Cubasis	£129	81%	MF37	Harman Audio	0181 207 5050

A very capable entry level sequencer with few omissions and a ready upgrade path. A big step up from *Cubase Lite.*

CyberSound FX	£81	92%	MF42	Adobe Shop	0131 451 6888

MACFORMAT Classic Sound processing and conversion effects supplied as *Adobe Premiere* and *SoundEdit 16* plug-ins, each of which can have several templates. Excellent value.

Deck II v2.5	£410	84%	MF38	CU	0181 358 5857

Direct-to-disk recording program that also has many uses for multimedia authors and post-production studios.

FreeStyle	£149	90%	MF22	Music Track	01462 733310

MACFORMAT Classic An excellent introduction to sequencing with some powerful and unique features. Designed more for music makers than technology-junkies.

Hyperprism (PowerMac)	£266	86%	MF42	Unity Audio	01920 822890

The digital audio equivalent of twiddling the dials on an analogue synthesiser. Different versions for different Macs.

Logic 2.5	£649	92%	MF31	Sound Technology	01462 480 500

MACFORMAT Classic A high-powered sequencing package with some unique processing and arranging features. One of the most powerful products on any platform.

Makin' Music	£25	89%	MF28	CD Exchange	01603 261060

A CD packed with MIDI files, music modules, commercial demos, general utilities and samples. Great value for dabblers.

MusicTime	£100	90%	MF27	Arbiter	0181 202 1199

MACFORMAT Classic An excellent budget-priced scorewriter that can use QuickTime's Musical Instruments Extension. The first all-in-one Mac music program.

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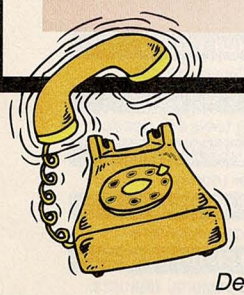

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Product News continued

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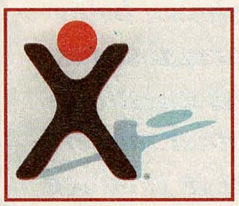

Xemplar Education is the name give to **Apple** and **Acorn's** joint venture in the educational market, and it has just launched its **autumn catalogue,** which includes **Primary Classroom Resource Packs.** These have been produced in conjunction with leading publishers like **Dorling Kindersley, Random House, Oxford University Press** and others, and contain hardware, software, books, videos and audio tapes.

Older children can benefit from the ***Toolbox* packages;** each one focusses on specific areas of the **National Curriculum**, including Maths, English, Design and Technology, Geography and Science. They contain all the hardware, software and materials needed for either Mac or Acorn systems.

The **autumn catalogue** is being posted to around 40,000 teachers, but you can order a **free copy** by calling **01223 724200.** You can also visit the company's Web site at **http://www.xemplar.co.uk/**

Protecting your data

FileGuard 3.0 from **Highware** is a sophisticated **file protection** system designed for both **single users** and **network administrators.** You can **encrypt** files to prevent unauthorised access and you can electronically **"shred"** them, which makes them **impossible to recover**, even using specialised programs like *Norton Utilities.* (Deleted files can normally be resurrected quite easily.) You can protect **whole folders** and their contents, and even whole disks.

In its network form, *FileGuard* enables a single administrator to control access to all of the machines on the network. The administrator can specify **user IDs, passwords** and even the applications and documents which can be made available. The machines can also be prevented from working outside set hours. It's even possible to use *FileGuard* as a sophisticated **activity log,** by getting users to log on using project names, and then analysing the results for costing and planning purposes.

Anyone who needs powerful data **protection features,** or who wants to control a network of Macs, should take a close look at *FileGuard 3.0:* previous versions were highly rated. The program is distributed in the UK by **Soft-**

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Name	Price	Rating	Reviewed	Contact	Telephone
Overture	£234	90%	MF24	MCMXCIX	0171 723 7221

MACFORMAT Classic Application for converting your MIDI compositions into printed scores in musical notation – essential for communicating with other musicians!

Peak	£399	86%	MF41	Natural Audio Ltd	0181 207 1717

Easy to use, powerful and intuitive digital editing and processing program, with well integrated plug-ins – at a price.

Q10 Parametric EQ	£309	88%	MF43	Natural Audio	0181 207 1717

Flexible equalisation software that comes with over 200 preset files, which might cover all your EQ needs on their own.

QX/SDII	£253	82%	MF43	Mediaspec	013552 72500

3D stereo sound spatialiser for getting a bigger sound out of your speakers. Create and save presets for specific tracks.

S1 Stereo Imager	£499	82%	MF43	Natural Audio	0181 207 1717

Stereo spatialising plug-in which is good at cleaning up poor stereo recordings.

Session 2	£175	89%	MF33	Digidesign UK	0800 898 331

Affordable direct-to-disk recording program. You miss out on some features, but it's still up to professional use.

SoundEdit 16 version 2	£410	80%	MF36	CU	0181 358 5857

Edits digital audio and constructs QuickTime audio tracks. Old, but still the best sound editor for multimedia authoring.

Visual Arranger	£39	90%	MF26	Yamaha	01908 366700

MACFORMAT Classic MIDI application for those who want to create a lot of music for relatively little input. Needs no musical skills at all and is fun to use.

Multimedia authoring

As business presentation packages start to offer the features of multimedia authoring kits, and as authoring kits are used more and more by businesses looking for presentations with more polish, the boundaries are becoming blurred – hence the umbrella title "multimedia authoring" used here. This includes animation and video too.

Name	Price	Rating	Reviewed	Contact	Telephone
Amazing Animation	£58	90%	MF26	Claris	0181 756 0101

MACFORMAT Classic Animation tool aimed at kids and which comes with a stock of characters to animate and the ability to add your own via scans. Children love it.

Animation Works	£153	85%	MF26	Gold Disk	01734 814230

Aimed more at youngsters than professionals, but still needs drawing skills and an understanding of cel animation.

Astound	£222	91%	MF36	Gold Disk	01734 814230

MACFORMAT Classic A top presentation tool which makes handling quite complex actions easy. Surprisingly competent at general multimedia authoring.

Authorware Academic	£150	95%	MF43	Prentice Hall	01442 257115

MACFORMAT Classic Icon-based multimedia creation at its finest, this power-packed program is ideally suited to lecturers as well as students. Just as well, as they're the only people who can buy it.

Digital Chisel HTML 2.1	$159	89%	MF36	Pierian Spring	00 1 800 472 8578

Powerful entry-level educational package with a simple interface, but no built-in script language or multimedia resources. We reviewed *Digital Chisel 2.0.*

Director 5.0	£1,174	85%	MF41	CU	0181 358 5857

A sound upgrade to the industry leader for media authoring, which irons out many shortcomings. It's easier to use, too.

Director Academic	£46	95%	MF43	Prentice Hall	01442 257115

MACFORMAT Classic De-facto standard for multimedia creation in a cut-down version – for educaion only. Powerful and versatile but complex, especially with its Lingo scripting language.

Elastic Reality 1.21	£293	90%	MF26	Softline	0181 401 1234

MACFORMAT Classic Heavyweight morphing application that's more sophisticated than its cheaper rival *Morph,* and correspondingly harder to get into.

HyperCard 2.3	£95	79%	MF36	Apple	0800 127753

Authoring bundle built uneasily around the ageing *HyperCard.* With it, nothing is impossible, but few things are easy.

HyperStudio 3.0	£121	88%	MF36	TAG Developments	01474 357350

Practical and powerful tool aimed more at education than multimedia authors per se. More text styling tools are needed.

Kid Pix Studio	£30	79%	MF36	Brøderbund	01429 273029

Fun, imaginative and easy to use, yet limited to basic, though amusing, multimedia tools – top value for money.

miroMotion DC20	£999	81%	MF38	miro UK	01706 832000

Affordable video card for PCI Macs aimed at amateurs or semi-pros. Professionals will still need to shop elsewhere.

Morph 2.5	£117	84%	MF26	Softline	0181 401 1234

Powerful and enjoyable morphing program at an affordable price. Easy to use, although lacking in professional features.

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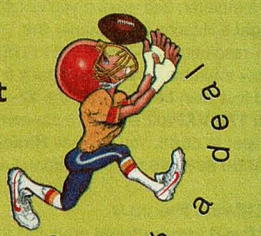

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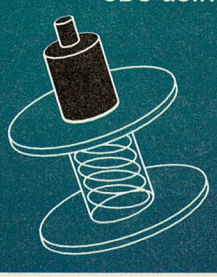

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Product News continued

line, who you can contact on **0181 481 1234,** or you can visit Highware's Internet site at **http://www.highware.com**. A **single-user** version costs **£199,** while **5-user** and **10-user** *FileGuard Remote* packs cost **£546** and **£939** respectively.

Cheaper monitors

Hitachi has apparently sold twice as many monitors in the first half of this financial year as in the same period the year before, and is celebrating by **reducing its prices** on nine of its models by an average of **18 per cent.** Good news if you were just about to buy a monitor; bad news if you've just bought a Hitachi. For example, the high-resolution **21-inch CM2111ME** is now available for **£1,300,** nearly a third less than before, while the **17-inch 17MVXPro2** is now 18 per cent cheaper at **£580.** You can call **Hitachi** on **0800 605605** for more infomation.

HoTMetaL Pro v3.0

SoftQuad International produces the highly-rated ***HoTMetaL Pro,*** and has just announced **version 3.0** of its Web page authoring software. It includes the ability to create forms, drag-and-drop editing and linking, **graphical tables and frames.** Importantly, it also includes support for all the **extensions** used by the two leading **Internet browsers,** *Netscape Navigator* and *Microsoft Internet Explorer.*

What's more, *HoTMetaL Pro 3.0* is designed so that any new HTML commands can be added via a rapid updating system. HTML is the code used to control the layout and actions of Web pages and is evolving constantly, much to the chagrin of Web designers and authors. You can contact **SoftQuad** on **0181 387 4110** or visit the company's Web site at **http://www.softquad.com/**

Cheaper pictures

Casio's clever **QV-10A digital camera** is now available at a reduced price of **£411,** and comes with the excellent ***Adobe PhotoDeluxe*** image manipulation program – making it easier than ever to save and modify your photos on your Mac. The camera is available at dealers, and you can find your nearest one by calling the **Dealer Hotline** on **0181 893 2592.**

Centralise your data

If your company stores images or other data in **libraries** of **CD-ROMs**, how do you make them available to meet the needs of your staff? If you have to go downstairs, knock on someone's door and then get the keys to the cupboard... well, there is a much better

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Name	Price	Rating	Reviewed	Contact	Telephone
PROmotion	£149	80%	MF26	Gomark	0171 731 7930

Animation program for serious or professional users, which requires skill and know-how. Can output to videotape.

Scenery Animator	$175	81%	MF26	Natural Graphics	00 1 916 624 1436

Rival landscape creator to *Vista Pro* which is just about as powerful, but includes the ability to create animated fly-bys.

SuperCard 2.5	£333	77%	MF36	Gomark	0171 731 7930

The program that *HyperCard* should have been developed into – proper sound, colour and animation support, yet *HyperCard*-compatible. Price and general support could be a problem.

Multimedia CD-ROMs

The invention of the CD-ROM has created a whole multimedia publishing industry turning out educational, reference and leisure titles by the score. Here's our list of CD-ROMs that every home should have on its bookshelf. Possibly.

Name	Price	Rating	Reviewed	Contact	Telephone
Ancient Lands	£30	85%	MF38	Microsoft	0345 002000

Entertains as well as educates. Although it's not a real research tool, it will readily inspire you to dig further.

Cinemania 96	£30	89%	MF36	Microsoft	0345 002000

Typically thorough and well-designed Microsoft encyclopaedia – but would you want to buy the new version every year?

Encarta 96	£50	83%	MF42	Microsoft	01345 002000

Microsoft's definitive multimedia encyclopedia is bang up-to-date, but the Mac implementation is flawed.

Encyclopedia of Nature	£40	85%	MF36	Dorling Kindersley	0171 753 3488

Excellent enhancement of the paper-based encyclopaedia, but not enough interactive multimedia technology.

Encyclopedia of Science	£40	89%	MF32	Dorling Kindersley	0171 753 3488

Misses out on cutting-edge whizz-bang multimedia, but provides an absorbing background to science in general.

Encyclopedia of Space	£40	82%	MF42	Dorling Kindersley	0171 753 3488

More illustrations and fewer dry facts would help, but this is an otherwise impressive release that also educates.

History of the World	£40	89%	MF38	Dorling Kindersley	0171 753 3488

More flashy and inspirational than in-depth and authoritative. Oozes quality, but built for browsing rather than research.

Makers of the 20th Century	£45	89%	MF41	News Multimedia	01525 852 813

200 personalities of the 20th Century are examined and explained in a well-presented and often intriguing CD.

modified: frEQuency	£16	83%	MF40	modified	01225 337992

A kind of multimedia jukebox – an assault on the senses that's actually interactive if you can keep up with the pace.

MTV Unplugged	£25	88%	MF40	CIC	0181 846 9433

Multimedia database of *Unplugged* performances going back seven years and including interviews, video and set listings.

Music Central 96	£40	95%	MF40	Microsoft	0345 002000

MACFORMAT Classic *Music Central* is to music what *Encarta* is to the world at large. Typically for Microsoft, very good indeed, with a subscription deal for regular Web updates.

Quest for Fame	£50	85%	MF40	IBM	01329 242728

Cross between a game and a multimedia celebration of the pop industry. Embark on your own quest for fame.

RedShift 2	£50	92%	MF32	Maris Multimedia	0171 488 1566

MACFORMAT Classic Restrained but magnificent exploration of the universe using sound astronomic principles, hailing originally from Russia rather than the gung-ho States. Utterly definitive.

Wings: Korea to Vietnam	£40	81%	MF33	BMG	0171 384 7800

Another high-quality database of military aircraft, with all the stats fans could want. No historical perspectives, though.

Wings: Midway to Hiroshima	£40	86%	MF33	BMG	0171 384 7800

A database of 636 aircraft from World War II, together with 15 virtual planes and five virtual airbases to explore.

World Reference Atlas	£50	90%	MF37	Dorling Kindersley	0171 753 3488

MACFORMAT Classic Bestrides the Earth like a colossus, giving you the information you need, when you need it. The maps and graphics are mouth-watering.

Multimedia for Kids

How do you keep the kids entertained on a wet Sunday afternoon in November? How do you justify the purchase of a new PowerMac to your spouse/bank manager/conscience? Multimedia CD-ROMs for kids can entertain, occupy and educate all at the same time. Here are the best we've seen.

Name	Price	Rating	Reviewed	Contact	Telephone
Adventures of Peter Rabbit	£30	88%	MF43	Mindscape	01444 246333

Seven-year-olds might find this a tad naïve, but the charming atmosphere and beautiful illustrations make it a real winner.

A to Zap	£35	80%	MF39	ABLAC	01626 332233

Excellent sound and graphics, though the letter-teaching routines are a little predictable and some screens are dull.

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Product News continued

way. Bristol-based **Westpoint Peripherals** can supply a **MACready** kit, including a Mercury **jukebox** for juggling lots of CD-ROMs, plus ***Miles Apart*** networking software. Once a Mac is set up as the server, all the other users on the network can access the contents of the CDs without any additional software.

To find out more, call **Westpoint** on **01275 474740.**

Where did we come from?

If you've ever wondered what life is all about, where we came from and where we're going, you might find the answer on the new ***Challenge of the Universe*** **CD-ROM** from **Oxford University Press.** Containing observations and insights from **Stephen Hawking,** five Nobel prize-winners and another seven premier scientists, you can expect more hard science than mystical metaphysics. Call Oxford University Press on **01865 267815** if you'd like to know more, or look out for *Challenge of the Universe* in the shops at **£50.**

Better colour

Apple has released **version 2.1** of ***ColorSync,*** its colour calibration software. *ColorSync* is a System extension that's designed to get more **consistent colour** from a range of devices like monitors, scanners and printers. These devices use different methods for generating colours, so there can be a big difference between the colours you see on your monitor and those you get on a print-out, for example.

Using **colour profiles** that contain information about a particular device's characteristics, *ColorSync* can balance and modify colours to try to keep them consistent. Apple says **version 2.1** is **faster** and **more compact** than previous releases; and it includes **new features** and tweaks to help designers and publishers. It's available as a **free update** from Apple's Web site at **http://www.macos.apple.com/** in the "Innovative Technologies" section, and will be included in the next version of the Mac operating system.

Favourite PR quote

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We'd like to hear your experiences of **insurance companies.** Perhaps your insurer has **refused to cough up** when burglars have stolen your Mac equipment, or they have either insisted on strict **liability limits** per item or **refused** insurance cover outright. We also want to hear about your **good experiences** with insurers – those who have paid up promptly, perhaps under unusual circumstances, or who have excellent home contents policies

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Name	Price	Rating	Reviewed	Contact	Telephone
Batman Cartoon Maker	£20	83%	MF39	Random House	01621 816 900
Now your kids can create their own cartoon *Batman* movie – if they've got the patience. Well thought out.					
Counterfeit Collaborator	£28	90%	MF35	Sierra	01734 303322
MACFORMAT Classic A genuinely intriguing mystery forms the heart of this Playtoon CD. French imagination and illustration translated into English makes a beguiling combination.					
Digby's Adventures	£20	87%	MF35	Eidos Interactive	0121 606 1800
A lovable Yorkshire terrier gets into all sorts of scrapes in this entertaining shaggy dog's tale.					
Dr Seuss's ABC	£30	82%	MF39	Living Books	01429 520250
Lots of animations and things to click on, but an adult is needed to extract any educational value beyond the sheer fun.					
Fun School Young Scientist	£26	85%	MF42	Europress	01625 859 444
Fun educational package for five to nine-year-olds, with lots of suggestions for out-of-school activities.					
Greatest Toyshop on Earth	£30	88%	MF32	Omnimedia	0181 974 6766
A brilliantly entertaining set of kids' toys in a comfortingly British environment. Something to keep coming back to.					
Great Green Mouse Disaster	£30	81%	MF38	MIP	0345 697008
Can you catch enough mice to make an orchestra? In a kid's world, such a question prompts hours of fun.					
Imo and the King	£35	82%	MF34	ABLAC	01626 332233
A 12-page interactive storybook packed with incidental animations, which you can simply listen to or explore yourself.					
Interactive Alphabet	£24	80%	MF39	Channel	01703 814142
Good value, but not much curriculum relevance and even less by way of interaction, despite good animation and design.					
It's a Bird's Life	£20	87%	MF35	Eidos Interactive	0121 606 1800
With 60 pages of story, *It's a Bird's Life* entertains your kids and teaches them something at the same time.					
KidWorks Deluxe	£35	88%	MF43	ABLAC	01626 332233
An excellent package which encourages children to get involved in all aspects of story-making.					
The Lie	£20	80%	MF43	ABLAC	01626 332233
More likely to sink in than a parental lecture on the importance of telling the truth, this is an entertaining title.					
Logical Journey of the Zoombinis	£30	96%	MF41	Brøderbund	01429 273029
MACFORMAT Classic A well-designed course in mathematical logic for kids that's almost completely disguised as a superb-looking and fun game.					
The Lost Mind of Dr Brain	£28	92%	MF43	Sierra	01734 303322
MACFORMAT Classic Challenging, lots of fun and well suited to the intended age group, *Dr Brain* is addictive and has longevity. A great buy.					
The Mandarine Prince	£28	88%	MF37	Sierra	01734 303322
A firm favourite in his native France, cub reporter Spirou solves another mystery in this fine title.					
Marty & The Trouble with Cheese	£25	81%	MF37	Maxis	0171 505 1500
Not the best story in the world, but cute characters and microphone (rather than keyboard) input make this storybook fun.					
Maths Workshop	£30	90%	MF41	Brøderbund	01429 273029
MACFORMAT Classic Teaches maths in the broadest possible sense, with wonderful-looking activities and a good manual. Needs adult assistance, though.					
My First Amazing World Explorer	£30	89%	MF41	Dorling Kindersley	0171 753 3488
Interactive atlas that's pitched at just the right level for younger children, showing the world as a diverse and living thing.					
PB Bear's Birthday Party	£30	92%	MF35	Dorling Kindersley	0171 753 3488
MACFORMAT Classic Interactive storybook entertainment for three-year-olds which combines fun, learning and real photography in a quality package.					
Peter Rabbit's Numbers	£30	82%	MF41	Mindscape	01444 246333
Not that much to do and a bit repetitive, but a good learning tool nonetheless, and quite rewarding for children.					
The Secret of the Castle	£28	90%	MF35	Sierra	01734 303322
MACFORMAT Classic This Playtoon disc is produced to the same high standards as its sister titles, but in this case its value is more entertaining than educational.					
Sitting on the Farm	£20	87%	MF35	Eidos Interactive	0121 606 1800
Make up your own stories and songs with this farmyard-based disc.					
The Stone of Wakan	£28	88%	MF37	Sierra	01734 303322
This Playtoon animated storybook offers one of the most sophisticated tales in the range.					
Strategy Games of the World	£20	81%	MF43	Iona	0181 296 9454
Although this title could do with a few more games, the three on offer are great fun with plenty of background material.					
Talking Stories	£40	80%	MF39	Sherston	01666 840433
Excellent reading aid based firmly around schools, which lacks gloss and does need adult supervision.					
Uncle Archibald	£28	90%	MF35	Sierra	01734 303322
MACFORMAT Classic Another excellent Playtoon about imaginary monsters that come to life. Slapstick chaos is the result. And you can use it to learn French.					
Word Stuff	£20	85%	MF39	Centregold	0121 606 1800
Teaches English and explains various everyday situations. An excellent blend of entertainment and real educational value.					

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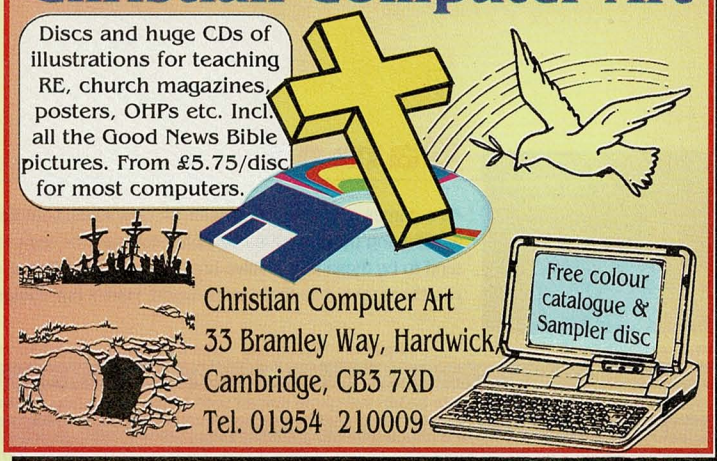

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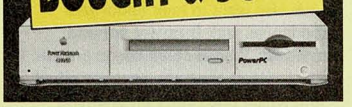

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specially for computer owners. For example, many insurance companies are offering combined household and business insurance for those who use their computers professionally at home.

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We also want to hear about your experiences with **Internet service providers**. Whose connections are the fastest, which ones are oversubscribed – and which ones carry on charging you after you thought you'd closed your account? We want to hear all your experiences, good or bad. E-mail **macformat@futurenet.co.uk** and include "Service providers" in the subject title. Or, if your service provider is so bad you can't even get on-line, write to us! The address is on page 129.

Mac Diary

Apple Expo '96

Where: Olympia, London
When: Wednesday 6 November to Saturday 9 November
What: One of Europe's biggest Mac shows – see page 26 for more details
Price: £15
Contact: Call the Apple Expo Hotline on 0181 390 0203

Power User Course

Where: Manchester and Leeds/Bradford
When: Friday 8 November and Friday 22 November, and Friday 15 November and Friday 29 November respectively
What: Intensive Mac training for self-taught Mac owners
Price: £225
Contact: MacPeople Digital Training Solutions on 0161 237 5225

Digital Media World

Where: Wembley, London
When: Tuesday 19 November to Thursday 21 November
What: A show full of the latest graphics tools in graphics, video, print and multimedia
Contact: Call Digital Media World on 01923 244555
Price: £20

Mac Contacts

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Games

As a games machine, the Macintosh now rivals both the PC and the plethora of whizz-bang plastic games consoles flooding the teen market. The best games tend to be those that involve brains as well as reflexes, and those which absorb you thoroughly into their game-world. Here's our choice of the best recent titles.

Name	Price	Rating	Reviewed	Contact	Telephone
Allied General	£45	85%	MF37	Mindscape	01444 246333

Standard but utterly absorbing hex-based wargame spiced with black-and-white newsreel footage.

Angel Devoid	£40	84%	MF37	Mindscape	01444 246333

Compelling and violent game that's also an interactive movie. Traditional adventure format with an unsettling atmosphere.

Apache Longbow	£45	92%	MF41	Digital Integration	01276 684959

MACFORMAT Classic 3D Gouraud-shaded flight sim with real class and some fairly hefty hardware requirements. Once you've mastered the controls, the missions are a joy.

Asterix: Caesar's Challenge	£40	92%	MF36	Infogrames	0171 738 8199

MACFORMAT Classic Great family fun with superb animations and humour, and oozing with novelty. Just don't ask awkward questions about long-term appeal.

Colonization	£45	93%	MF32	MicroProse	01454 893900

MACFORMAT Classic The follow-up to *Civilization* is hardly an orgy of state-of-the art sound and graphics, but it is an utterly absorbing simulator with long-term appeal.

The Dame was Loaded	£40	81%	MF40	Philips Media	0171 911 3081

A 1940s America detective game that's actually a lot better than the dismal promotional material would have you believe.

Day of the Tentacle	£40	94%	MF33	Virgin Int. Ent.	0171 368 2266

MACFORMAT Classic A game it's impossible to fault. You'll love it. You'll hate it. You'll want to wring its neck. It's funny, it's involving and the cartoons are quite superb.

Descent	£40	87%	MF34	Interplay	01628 423666

Technically superb, ground-breaking game that's thrilling to play. If only it had a bit more gameplay and variety.

The Dig	£45	83%	MF38	Virgin Int. Ent.	0171 368 2266

Wonderful production and mind-bending puzzles wrapped up in a glitzy package that doesn't quite bowl you over.

Doom 2: Hell on Earth	£45	90%	MF31	Virgin Int. Ent.	0171 368 2266

MACFORMAT Classic The blood-spattered violence *Doom* is famous for hides some quite involving puzzle-solving. One of the best 3D arcade games around.

F/A-18 Hornet 2	£69	93%	MF36	Softline	0181 401 1234

MACFORMAT Classic Realistic, absorbing and fun – an instant classic. Imaginative and interesting missions that progress into desperate adrenaline-laced strikes.

Full Throttle	£45	85%	MF37	Virgin Int. Ent.	0171 368 2255

Wonderful to look at and enjoy, but ultimately a portfolio of entertaining cut scenes punctuated by mainly shallow puzzles.

Gabriel Knight: The Beast Within	£45	84%	MF42	Sierra	01734 303322

Interactive movie/adventure game that for once successfully blends video footage with excellent gameplay.

IndyCar Racing II	£17	94%	MF42	Sierra	01734 303322

MACFORMAT Classic Spectacular simulation at its finest, and at a real bargain price. Stunning graphics and attention to detail, combined with responsive cars and ruthless opponents.

Marathon 2	£65	95%	MF35	Softline	0181 401 1234

MACFORMAT Classic A huge game task, addictive gameplay and excellent graphics and sound. What more could you ask for? Well... maybe a lower price.

MechWarrior 2	£50	89%	MF43	Activision	0181 742 9400

Its complexity is initially confusing and the controls can take some getting used to, but *MechWarrior 2* is too addictive to let that worry you for long.

Panzer General	£45	80%	MF42	Mindscape	01444 246333

Complex and absorbing hex-based wargame with five major campaigns and refreshingly mild hardware demands.

SimIsle	£35	83%	MF43	Maxis	0171 505 1500

A good idea with clean and pretty graphics, but having to work through agents all the time can be frustrating.

Spycraft	£50	84%	MF39	Activision	0181 742 9400

An involving spy simulator that needs time and hardware. Superb blend of video, arcade sequences and puzzles.

Ultimate Doom	£30	85%	MF34	GT Interactive	0171 258 3791

This full version of *Doom 1* is shaded little by the release of *Doom 2* and is a good buy for budget-conscious blood fans.

X-Wing	£45	90%	MF36	Virgin Int. Ent.	0171 368 2255

MACFORMAT Classic The classic *Star Wars* flight sim finally makes it onto the Mac, together with a facelift and 102 missions. It's good, but needs serious hardware.

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User Groups

If you're new to the Mac, exploring an unfamiliar application, or just having problems with any aspect of your machine, there's no substitute for hands-on, face-to-face assistance. Apple's telephone Assistance Centre can help with hardware or System problems, and a software supplier's technical support line can be invaluable, but there's no doubt that the best guide is someone who's been there, knows what you're facing and can lead you through it. But if you don't have a Mac-owning friend nearby, how do you find such a person?

For many people, the ideal answer is a user group – a more or less informal club of people interested in the same subject. Some groups are large and quite structured; others are not much more than informal, sporadic get-togethers of kindred spirits. Some ask you for a membership fee; for others, the price of admission might be no more than standing your round at the bar. Particularly in the case of special interest groups or those dedicated to particular software applications, they can be some of the best sources of information, advice, and help.

Bear in mind that many groups are run by enthusiasts as a hobby in their spare time, so you can't always expect to be able to call for instant help. Some groups simply meet every now and then in a local pub to swap experiences; others even publish regular newsletters containing news, bug reports and helpful advice.

Over the next few pages, we've included lists of UK user groups, together with contact names and telephone numbers. We want to make this a regular feature of this section, so if you want to publicise your own user group, send us a letter explaining what it's about, where you meet and whom interested readers should contact.

This is a free service for amateur, non-profit-making Mac user groups. MACFORMAT does not endorse or recommend any group and cannot be held responsible for any problems you might suffer as a result of contacting any of the groups listed here.

UK User Group Council list

The UK User Group Council maintains a list of Mac user groups that register with them. If you wish to contact the council, call John McKnight on 0181 314 5555.

Local groups

- **Aston University Mac UG**: Birmingham area. Contact Ray Tier on 0121 359 3611
- **Berkshire Mac UG**: contact Ian Burn on 01734 813
- **Blackburn Mac UG**: contact Roger Moreton on 01254 670043
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- **PowerBook 5300 16/500,** TDK fax PC card modem, carry case, StyleWriter 1200, warranty – £2,000 ono. Jack ☎ 01865 279619
- 16Mb **72-pin SIMM** – £60 ono. ☎ 0171 622 2350
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- **Performa 450 8/120,** monitor, keyboard, mouse, NEC 2x external CD-ROM drive, manuals, System 7.1, home use only – £600. David ☎ 0181 450 1423 (eves)
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- Roland **A3 flatbed plotter** DXY 1100, 8 pens – £250; 2 x 1Mb 30-pin SIMMs – £30. ☎ 01592 260147 or 01592 263153
- **Colour Classic 4/80,** System 7.1, keyboard and mouse, excellent software – £495. ☎ 01279 652176 (eves)
- **8100/80AV 64/4Gb,** internal RAID, external 1Gb Startup drive, *Videovision Studio* – £6,300; Radius 19-inch Precision Colour monitor – £650. Jason ☎ 0171 581 4174
- **LCIII 12/540,** 14-inch SVGA, external CD, HP560C, many games, *ClarisWorks,* System 7.1, loads of extra utilities, manuals, disks – £700. ☎ 01384 483682
- **Performa 630 8/500 CD,** System 7.5.1, monitor, keyboard, six months old, six months guarantee, all manuals, disks, *RAM Doubler* – £1,100 ono. ☎ 0171354 2297 (eves)
- Macintosh **SE, SE/30 analogue board** with PSU, LOPT and video circuitry, fan, excellent condition – £30 incl, or swap for 4Mb SIMMs ☎ (01480) 406415 (after 6pm)
- **Classic 4/40,** keyboard, mouse, software, manuals, boxed, home use only – £200 ono. ☎ 01223 872381
- **LC 10/40,** 12-inch colour monitor, quad-speed Apple CD drive, all in good condition, home use only – £450. ☎ 01508 538159
- Mac **LC 10/40,** 512K video RAM, mouse, keyboard – £200. Guilford ☎ 01483 39677 (eves)
- **PowerMac 6100/66 24/350/CD,** 4Mb DOS card, Sony 15SX monitor, design keyboard, mouse, quick sale – £1,350 including delivery within UK. Benjamin ☎ 0121 420 1482 or e-mail **ben@modus.co.uk**
- **PowerBook 540C 16/350,** 100MHz 603e, PCMCIA expansion, pristine condition, assorted cables, three batteries, legal receipted – best offer secures. David ☎ 0976 302567 (mobile)
- **Mac II 5/80,** 8-bit video card but no floppy drive, otherwise functional, will break for spares or RAM – £80 ono; PowerMac 7200/90 8/500/CD, Apple warranty Feb '97, more RAM and monitor available – £995. Moving to Pentium. Lancs ☎ 01695 732565
- **Performa 5200 75/8,** 15-inch monitor, internal modem, keyboard, mouse, CD-ROM drive, stereo speakers, System 7.5, expandable to 64Mb, excellent condition – £900. ☎ 0181 908 1086
- **Epson Stylus Pro XL,** A3+ bleed, six months old, mint, bargain – £700, no offers. Surrey, Philip ☎ 0956 390531
- **20-inch Trinitron monitor** for Mac, including cable, 1,024 x 768, can be seen working – £400 ono. ☎ 0171 349 8754 or 01722 503500
- **Performa 630 8/350 CPU,** TV tuner, video-in, System 7.5.3, manuals, receipts – £600. Jason ☎ 01246 230372 (after 7pm)
- **LCII 8/540,** System 7.1, 13-inch colour monitor, quad-speed CD-ROM, Thunder 32MHz accelerator with FPU, keyboard, mouse, great software – £595. ☎ 01279 652176 (after 6pm)
- **Apple LocalTalk card** for networking ImageWriter II or LQ printer, new, never used – £40. ☎ 0181 548 0403
- **Performa 12/500 CPU,** 68030, System 7.1, colour card, *ClarisWorks, Aldus Home Publisher, Intellidraw, SuperPaint, TypeTwister,* good worker, runs small business – £450 ono. Norwich, Duncan ☎ 01603 486824
- **Classic 4/40,** System 7.1, keyboard, mouse, *Word, Excel, FileMaker* – £250; Mac IIsi 9/80, System 7.1, keyboard, mouse, 13-inch colour monitor, includes *QuarkXPress, Word, Excel, PowerPoint, Filemaker.* Martin ☎ 0171 488 8219 (office)
- **Video Director,** new, boxed with smart cable connector and gold disk – £49.95. Shiraj ☎ 0171 404 1290
- **Colour StyleWriter 2400** with Style-script and spare cartridges, little used – £240 ono; four 4Mb 30-pin SIMMS, almost new – £20 each. ☎ 01483 828151
- **LCII 8/80,** 14-inch monitor, 44Mb SyQuest, StyleWriter II, System 7.5, lots of software, home use only – £600. Paul ☎ 01531 634319 or mobile 0374 946431
- **28.8bps SupraExpress** modem, includes cables, *Faxcilitate* and *Microphone,* manuals, cost £140 + VAT – accept £105. ☎ 01277 364951 (after 6pm)

■ **Classic II 4/40,** excellent condition – £275 ono; *FoxPro 2.5* – £50; *Think C* – £60 ono; *RAM Doubler* – £25; incl. p & p. ☎ 01633 864672 (eves)

■ **LC 4/40,** 12-inch RGB colour monitor, keyboard, mouse – £295; IIci 4/120, 13-inch RGB colour monitor, keyboard, mouse – £395; 2Mb module for RAM expansion in PowerBook 140, 160, 170 – £25; 4Mb module for Mac portable – £50. Slough, Brian ☎ 01753 643309

■ **Logitech Scanman 32** hand held scanner, perfect condition – £70 ono. Reading ☎ 01734 473495

■ **Macintosh SE30 2.5/40,** keyboard, mouse, excellent condition – £180 or best offer. ☎ 01825 724093

■ **Mac IIvx 5/230,** CD-ROM, 14-inch monitor, keyboard, mouse, cables, many CD-ROMs, System 7.1, includes *Microsoft Works,* all manuals, very good condition – £950 ono. East Kent, Jonathan ☎ 01843 846427

■ **Mac IIci 8/230,** 20-inch greyscale monitor, LaserWriter IInt, CD, SyQuest, extended keyboard, mouse, all leads, mint, bargain – £1,200 ono. East London, Kevin ☎ 0181 520 9020.

■ **4Mb 72-pin SIMMS,** suitable for Performa 630, two available – £20 each. ☎ 01978 266309

■ **IIvi 8/80,** 14-inch colour monitor, keyboard, mouse, HP DeskWriter 560C, manuals and extras – £700. Hereford ☎ 01981 240085

■ **Quadra 840AV 20/1.2G/CD,** CPU only, System 7.5.3, accelerated 48MHz, mouse, Geoport modem, software, CD-ROM 300+ (tray loading), home use only – £1,200; Internal Apple CD-ROM 300i, caddy loading – £50; 8 x 4Mb 70NS SIMMS – £20 each. ☎ 01444 245 392

■ **Performa 450 4/120,** 14-inch monitor, keyboard, mouse, original manuals, disks, as new, System 7.5.3, extras and *ClarisWorks 3.0* – £425. Oxfordshire, Howard ☎ 01295 256138

■ **JVC CD-R archiver** with software, single-speed read/write – £300 ono. ☎ 01225 444427

■ **Apple 14-inch Trinitron RGB monitor,** very good condition, screen filter, light home use only – £175. Darren ☎ 01934 813497 or e-mail **drhodes@plymouth.ac.uk**

■ PowerMac 8100/80 64/500, CD/AV/PC (*SoftWindows 1.0*), System 7.1.2, Apple 14-inch AV monitor – £2,300 ono. Berks, Dominic ☎ 01628 36402

■ **16Mb 72-pin SIMM,** due to upgrade on Performa 630 – £75 incl. carriage. Bruce ☎ 0115 952 3068

■ **Performa 475 4/160,** colour monitor, keyboard, mouse, loads of software, games – £450 ono; Hewlett Packard DeskWriter 310 colour printer, sheetfeeder, ColourKit extra – £140. ☎ 01226 740769

■ **PowerBook 5300c/100,** plus loads of software, bargain at – £1,950 ono; PowerBook 520c, still boxed, genuine reasons for sale, some software – £550 ono. ☎ 01252 621379 (anytime)

■ **Performa 630 8/300,** 33MHz, can be upgraded, quad-speed CD-ROM, HP printer, 28.8bps Motorola modem, System 7.5, lots of software, magazines, monitor, keyboard – £1,600. ☎ 0171 935 8584

■ **PowerBook 170 6/40,** internal modem, new battery, System 7.1, Apple carrying case, charger, cables, manuals – £520 ono. SW London ☎ 0181 673 6659

■ **8Mb 72-pin SIMMS** – £25; *Mavis Beacon 2.0* – £15; Apple microphone for 68K Performa – £15; *Freehand 5.5 Tutorial* (Peach Pit Press) – £12 (new). Francis ☎ 0181 292 7981

■ **StyleWriter II,** light home use only, full manuals, software, cables, boxed – £50. 01252 713477

■ **Mac Plus 4/20,** keyboard, mouse, StyleWriter II printer, lots of extras – £160. Vladek ☎ 0171 228 4089 (eves). 0181 941 7752 (days)

■ **Classic II 4/40,** excellent condition, keyboard, mouse, microphone, includes *ClarisWorks 3.0, RAM Doubler,* System 7.1 – offers around £245. ☎ 01633 864672 (eves)

■ **Quadra 700 20/250,** plus Radius Video Vision Studio v.2 incl. J-PEG compression board (PowerMac compatible), 20-inch colour monitor – £2,600. ☎ 0171 787 6505

■ **Mac Classic II 4/40,** keyboard, mouse, System 7.1, very good condition – £350 ono. ☎ 0181 504 6315

■ **4Mb 72-pin SIMMS** – £45. ☎ 01633 400232 or fax 01633 400826

■ **PowerBook 100 4/40,** *ClarisWorks 3.0,* System 7, **Disk Doubler** and StyleWriter I printer ,incl. cables – £280. ☎ 01858 462889

■ **HP Deskwriter 660C** colour printer, one year old – £125; Apple Personal laser printer LS mono – £100; Apple CD300 external CD-ROM drive, *Grolier Encyclopedia* and *World Atlas* – £80; Hayes Accura 288 v.34 fax/modem, six months old – £75; Apple Mac Classic II computer, keyboard, mouse, carrying case and software – £175; Apple 14-inch colour monitor, two years old – £100. ☎ 01634 718847

■ **PowerMac 8500/120 16/2Gb/CD,** excellent condition, boxed, with all manuals and cables – £1,600. Fax/☎ 01245 461870

■ **LC 4/40,** keyboard, colour monitor, mouse – £265. ☎ 01753 643309

■ **Radius 21-inch** grayscale monitor. Giles ☎ 01908 675444

■ **Mac IIsi 16/40 CPU,** 13-inch monitor, mouse, keyboard, ImageWriter II – £570 ono. Richard ☎ 01462 435372

■ **PowerMac 7100/66 16/1.2Gb,** Apple multiple-scan 17-inch monitor, external Apple CD-ROM, Yamaha YST-M10 speakers, excellent condition – £1,800 ono. Eddy ☎ 0181 244 5508 (eves)

■ **Quadra 800,** 24Mb RAM, 21-inch monitor – £1,400 ono; Pro-Tools III – £4,250; 882 interface – £550; 2Gb AV-drive – £400; Lexicon NUVERB with TDM – £1,100. Andy ☎ 0121 605 6082

■ **Apple colour Trinitron 15-inch monitor** in good condition – £300; Apple Internet Connection Kit – £40, pre-configured for use with Pipex. ☎ 0181 441 0120

■ New **UMAX-S6E scanner,** with *PhotoShop* – £250; Apple colour StyleWriter – £275; Apple 15-inch monitor – £250. Billie ☎ 0161 445 0517 or e-mail **101763.363@compuserve.com**

■ **PowerMac 7200/75,** 24Mb, 17-inch monitor, keyboard, mouse, under warranty – quick sale £1,295. ☎ 01582 488234

■ **Iomega Zip drive,** all leads and software, hardly used – £100 ono. Performa 400, 10/80 Thunder cache 32 FPU, 14-inch colour monitor, extended keyboard, mouse, ImageWriter II, dot matrix printer, all manuals, 14.4bps modem – £600 ono. Merseyside, Antony ☎ 01925 225342

■ **Performa 450 8/120,** monitor, keyboard, mouse, NEC CD-ROM, bundled software and manuals, home use only – £550 ono. Christina ☎ 0171 352 8171 ext 2886 (day) or 0181 450 6514 (eves)

Software for sale

■ ***Soft Windows 3.0*** CD for PowerMac, unopened – £130. ☎ 01782 512593

■ ***7th Guest*** – £12; *Marathon* – £15; *The Tale of Benjamin Bunny* – £8; *Rosetta Stone language pack* – £8; *10/10 Maths Tuition* – £8. Andy ☎ 01727 852836 (eves)

■ ***FreeHand 4.0*** (Power PC version) – £50; *Illustrator 3.2* – £35; *QuarkXpress 3.1* – £120. David ☎ 01509 269974 (day) or 01509 267519 (eves)

■ ***Aldus PageMaker 5*** – £150. Jan ☎ 01530 815353

■ ***Microsoft Office 4.2.1,*** on 3.5-inch floppies, boxed, unopened, unregistered, unwanted prize – £175. Dave ☎ 0181 800 4942

■ **System 7.1,** un-used and incompatible with our machine – offers. Ryan ☎ 01777 704449

■ ***Oracle for Macintosh v1.2*** – £20; *StudioCraft v1.01* – £10, both original disks and manuals plus postage. ☎ 01794 884454

■ ***Spenlunx*** (colour) – £12; *The Treehouse* – £12; *The Lost Treasures* (extra story for *Storybook Theatre*) – £15; *Ruff's Bone* CD – £10, boxed with manuals, postage extra. Anne ☎ 0181 224 6975

■ ***PageMaker 5.0*** on original disks, limited documentation, hence only – £75; empty CD cases – offers. ☎ 01253 352848

■ ***Photoshop 3,*** full, boxed, un-used (unwanted bundle copy with scanner), hence – £150 ono. ☎ 01225 444427 or e-mail **james-q.@dircon.co.uk**

■ ***FreeHand 4.0*** – £120; *Dataviz Maclink Plus 4.5* – £30, both boxed, all manuals. Brighton ☎ 01273 554894

■ ***Daedalus Encounter*** – £15 ono; *Inbred with Rednex* – £10 ono. Paul ☎ 01604 402891

■ ***Microsoft Office 3.0,*** boxed with original disks, manuals, perfect condition, unregistered – £70 ono; *Matlab 4.0* student edition – £20 ono. Gareth ☎ 01203 524186 (eves)

■ ***Avid VideoShop 3.0*** on CD-ROM with tutorial book – £35; *Claris Resolve* spreadsheet, unopened – £30, range of Mac manuals, books and CD-ROMs, as new, half price. Cambs, Richard ☎ 01480 300409

■ ***SoftWindows 3.0,*** 6.22/3.11 new, unregistered, shrinkwrapped – £200 inc. p&p. Dublin, Stephen 00 353 1 668969 (eves)

■ ***PageMaker 5*** – £165; *RAM Doubler* – £25. Essex ☎ 01245 466097

■ ***Sear*** CD writing software, multi OS Desktop version, unregistered – £100. ☎ 0181 2201225

■ ***SoftWindows 2.0*** – £90; *SoftWindows 3.0* – £130; *Speed Doubler* – £30; Supra Express fax/modem – £90. ☎ 01703 786327

■ *Animation Master,* 3D modelling animation and rendering, spline-based, together with *LetterBlox 3Dtex,* cost £850 – will sell for £220. ☎ 01734 623258

■ *LetraStudio 2.02,* logo/type manipulation program, full version, manual, original disks and packaging. Unregistered – £90. ☎ 01252 713477

Local User Groups continued

■ **Cambridge Apple UG**: contact Ian Archibald on 01223 311157

■ **Cancer Research/RMH UG**: contact Raymond Henry on 0181 643 8901

■ **Gateway UG**: Norfolk area. Contact Verne Anderson on 01638 513000

■ **Glasgow Mac UG**: contact Stephen Broadfoot on 0141 339 6646

■ **Herts/Beds Apple UG**: contact Norah Arnold on 01582 573918

■ **Liverpool Apple UG**: contact Irene Flaxman on 0151 928 4142 or 0151 949 0307

■ **London Mac UG**: contact John McKnight on 0181 314 5555

■ **Mac Assist**: Cardiff and district. Contact Nigel Arrighi on 01222 224682

■ **Midapple**: West Midlands. Contact William Watson on 01384 277921

■ **Midland Mac UG**: Worcestershire. Contact Ivan Knezovich on 01299 402631

■ **North West Apple CC**: contact George Evans on 01270 583714

■ **Nottingham Mac UG**: contact David Nicholson-Cole on 0115 945 5077 or 0115 945 5444

■ **Poole Mac UG**: contact Bob Lister on 01202 684441

■ **S E Essex Mac UG**: contact Michael Foy on 01702 468062

■ **Southampton Mac UG**: contact Clive Marklow on 01703 293453

■ **Southern Mac UG**: Salisbury area. contact Roger Ford on 01722 780102

■ **Southwest Mac UG**: contact John Elver on 01272 693119

■ **Staffordshire Poly Mac UG**: contact Mark Stiles on 01785 52331

■ **Sussex UG**: Hastings & E Sussex. Contact Garry Nevin on 01424 714110

■ **West Midlands UG**: contact Danny Torbica on 01902 336172

■ **Yorks & Humberside Mac UG**: contact David Vardy on 01423 358853

Thematic user groups

■ **BAPC (Printers)**: contact Derek House on 01228 513621

■ **Christian Mac UG**: contact Paul Wareing on 01789 490153

■ **Corel Draw UG**: contact Jill Foster on 01509 415101 or 01509 620442

■ **Developers UG**: contact John French on 01895 672654

■ **HebreWare**: contact Mendy Scharf on 0181 802 6143

■ **Helix UG**: contact John Sandell on 01763 273379

■ **Independent School UG**: contact Ian Carter on 01252 512151

■ **LAW Mac UG**: contact Charles Christian on 01379 88518

■ **Lisa Users Group UK**: contact Sheila Bell on 01367 710453

■ **MacBaud**: call 01685 58027

■ **MacLaw**: contact Nicholas McFarlane-Watt on 01865 784777

■ **Medical UG**: contact Keith Davey on 01836 348284

■ **Microsoft UG**: contact 'Enquiries' on 01252 834995

■ **Multimedia UG**: contact Richard Hurley on 01273 834588

■ **Newton MessagePad West Yorks User Group**: contact David on 0113

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Thematic user groups cont.

278 0691

■ **PageMaker UG**: contact David Foster on 01509 415101

■ **QUAD Club (QuarkXPress)**: contact Philip Caplan on 0181 523 4233

■ **School Mac**: Gloucestershire. Contact Bill Henley on 01453 825422

■ **School Mac UG**: Cambridge. Contact Derek Smith on 01945 584146

■ **Special Needs UG (SNUG)**: contact Geoff Hughes on 01744 24608

■ **Strata UG**: contact Roger Harris on 01227 369689

■ **The British IIGS UG**: contact Peter Stark on 01223 838231

■ **Young Mac**: call 01795 535472

Others

Advertise your user group here. It need not be formalised or registered, but must be a bona-fide non-commercial user group – just send us your details.

■ **Cumbria Mac user group.** Monthly meetings, newsletter, training (reasonable rates, free to members). Call Linda Linsell, 01229 828422 or send SAE c/o 10 Athol Street, Barrow-in-Furness, Cumbria LA14 2QT.

■ **Artists archive and news service**: contact The Research Station on 0181 778 6547 (24 hours) 38.4bps plus Web site at http://www.metamute.co.uk/r_station

■ **MacLin, E-lans MUG**: meetings every other Tuesday, bimonthly newspaper, for info call +46 (0) 141 220330 or e-mail omar@motala.mail.telia.com

■ **MacHelp**: non-profit helpbank for all your Mac problems. Write to : MacHelp – Hermelynster 10, B2610, Wilryk, Belgium, for advice and shareware.

■ ***Angel Devoid*** – £20, *Buried in Time* – £15, *Fury of the Furries* – £20, *Nascar Challenge* – £10, all incl postage. ☎ 01789 292788

■ ***Photoshop 3.0,*** boxed – £175. Lancs ☎ 01695 732565

■ ***Adobe Premiere 4.0,*** unused, floppy disks and double deluxe CD-ROM – £100. Craig ☎ 01279 42647 (after 6pm) or e-mail **craig@dotmad.co.uk**

■ ***Wing Commander 1-2-3,*** *PGA 3, Wolfenstein 3D, WolfPack, System Shock, Space Ship Warlock, Super Wing Commander, Shock Wave Assault* – £50. Geoff ☎ 01271 24236

■ ***Photoshop 2.5.1,*** boxed, manuals – £90; *Hypercard 2.2* – £40; *Astound 2.0,* disks and CD – £90; *Kai's Power Tools* – £40; *ClarisWorks 3* – £35. Arnim ☎ 01484 866091

■ *Harpoon II* CD-ROM – £25; *X-Wing* CD-ROM – £15; *Buried in Time* CD-ROM – £15; *Al Unser* CD-ROM – £8; all mint condition – offers for set accepted. Rob ☎ 01932 228431

■ ***KPT Vector Effects,*** unused – £60; *Apple remote access,* unused – £100. ☎ 01903 260066

■ ***Marathon 2,*** *Doom II, The Ultimate Doom, Hornet 2, Korean Crisis, A10 Attack, Falcon MC, F117A Nighthawk, Flying Nightmares,* all boxed, excellent bargains. ☎ 01905 840982

■ ***Syndicate*** – £12 incl. p&p. Robin ☎ 04689 55075

■ ***PageMaker 5.0,*** Power PC Native, boxed, sealed, unregistered – £170; MacPlus keyboard, mouse – £20. Glos, John ☎ 01452 521463

■ ***Type Twister*** – £14; *UnderWare* – £7; *Creative Writer* – £14; original disks, documentation, unregistered; *Teach Yourself QuarkXPress 3.2* – £12. Herts ☎ 01707 376850

■ ***OmniPage Pro 6,*** new, unopened, unregistered, cost over £350 – will sell £120 ono. Mike ☎ 0171 251 2885

■ Utility software, Dantz ***Retrospect*** (powerful archive backup) – £60; MacPeak *Spot-on* (formatting, caching, partitioning) – £25; both new, unopened, unregistered. ☎ 0181 518 7311

Swap shop

■ ***Daedalus Encounter,*** all three CDs – will swap for *Sim City 2000.* ☎ 01573 223888

■ Swap **Mega Drive** with cables, two pads, five games, incl. *Sonic 2, Populus* and *Super Kick Off* – open to offers. Joe ☎ 0181 907 2758 (after 5pm weekdays)

■ Desperately – *WarCraft* on CD or *WarCraft II* to swap for Megadrive games or money. Jamie ☎ 0131 455 8777 (after 5.30pm weekdays)

■ **4Mb 72-pin SIMM,** will swap for *Marathon CD,* must be boxed with all manuals etc. ☎ 01773 605797 (eves)

Wanted

■ ***Hellcats Over The Pacific*** – must include manuals. ☎ 01495 752199

■ **QuickTake Camera,** PowerBook, accessories, battery charger, SCSI/video cable, external floppy drive, mini dock keyboard, mouse – must be in good condition. ☎ 0956 807696

■ Redundant **PhoneNet connectors** for small non-profit company, any generous offers? Giles, Watford ☎ 01923 234303

■ **LaserWriter with Postscript.** Preferably Apple LaserWriter IInt or IIf or IIg. Chris ☎ 01684 562564 (days) or 01905 29601 (eves)

■ **PDS 24bit accelerated graphics card** for Performa 6200; also 17-inch monitor (or larger) and good quality spread sheet program, including manuals. Leicester ☎ 0116 231 3194

■ **Quad-speed CD-ROM** for equine rescue charity, sensibly priced please. Heidi ☎ 01274 402667

■ ***Discworld*** CD-ROM. Rick ☎ 0181 441 6607

■ 2.5-inch **internal SCSI hard disk** at least 500Mb, and 6MB RAM card. Both for PowerBook 145. Rafael ☎ 0181 692 8386 (after 8.30pm)

■ **Apple keyboard,** mouse, colour monitor, CD-300 also Laser printer 600dpi wanted, must be in good working order. ☎ 0181 548 0403

■ **Paperfeeder** (single sheet) for ImageWriter II, urgently required by student. London area, Don ☎ 01784 477896 (eves)

■ Mac **microphone.** Carl ☎ 0171 794 4958

■ **StyleWriter** for my old SE (2Mb). Must be in good order. Wanted urgently by student. Thames Valley ☎ 01628 528985

■ **StyleWriter II** printer. Must be in good condition. Huddersfield, Paul ☎ 01484 649943 (eves weekends)

■ Wanted by charity, **IIci, IIcx or similar motherboard** from a damaged, unwanted or dead MacII – will pay a sensible price. ☎ 0181 539 6361

■ **SyQuest 44Mb drive** in good working order. ☎ 0181 340 9651

■ Second hand **Sigma Designs Silver View,** mono, 21-inch monitor; 44Mb SyQuest Drive, internal or external. ☎ 0181 451 2090

Books and magazines

■ **"Smashingtosh"** the new Mac Fanzine. E-mail **lobster@nildram.co.uk** or send SAE to Leo Staggs, 71 Maxwell Gardens, Orpington, Kent BR6 9QT

■ **MACFORMAT,** The Mac magazines – full set. Free to whoever will come and collect them. ☎ 0171 935 1336

■ Magazines free to anyone who will collect. **MACFORMAT,** MacUser, Macworld etc. Geoff, Stockport. ☎ 0161 427 6998

■ **MACFORMAT** issues 18, 23-40, including CD-ROMs – £50 ono. *The Macintosh Bible* 5th Edition including CD-ROM – £15 ono. Gareth ☎ 01203 524186 (eves)

Help wanted

■ Help to solve ***Prince of Persia 1*** **and** ***2,*** I'm stuck! David ☎ 01535 653024

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MACFORMAT

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The Tiny Zone!

Hello and welcome again to Tiny Zone, the section of MACFORMAT that fills this space, month in and month out. The Mac may be the most popular computer in publishing, and most of us certainly wouldn't want to go back to the bad old days of blue lines and cow gum, but spare a thought for the human effort that's still involved. I mean, I'm sitting here at 11:15 am filling this space. So what, you ask? So we've *been* sitting here all night, and about 14 hours each day for the last two weeks, determinedly cramming more content, more quality, more commitment into every page. Why? Because we're mad, of course. Mad enough to believe that you might care about MACFORMAT as much as we do, and want the latest, the best-researched, the most thoroughly-tested information we can possibly bring you. We reckon that's what this journalism thing is all about, you see, whether it's done on Macs or on a potato press. And that's one reason we get so annoyed by *poor* journalism – when reporters don't bother to check the facts or pursue their own partial agenda. That's why we're so disappointed at the standard of reporting about Apple in general. You'll never catch us descending to the level of the tabloids and revealing that Gil Amelio wears one of those tiny hearing aids. Funny how it's the tiny details that loom large when you're tired...

Next Issue

Video

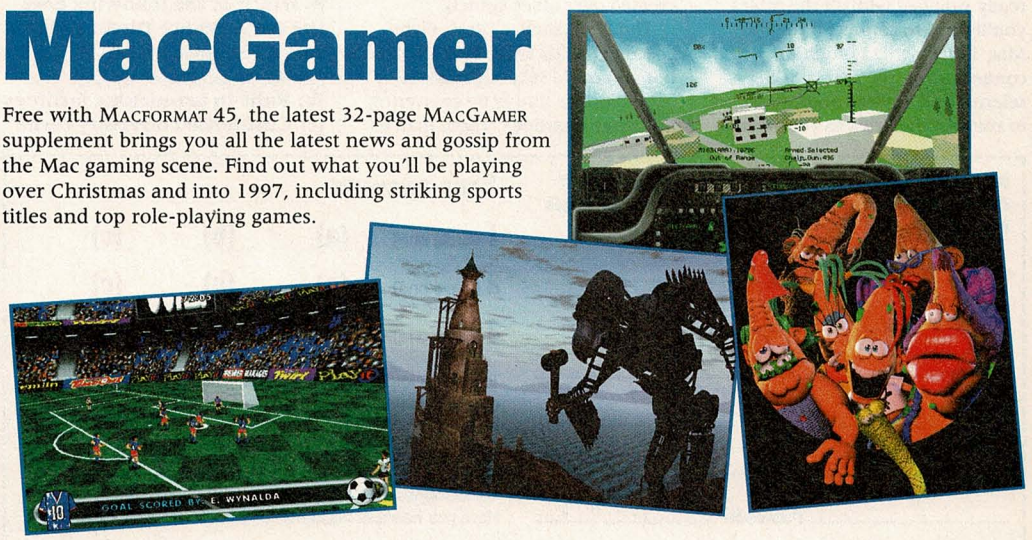
Discover how the BBC and Channel 4 are using Macs to create broadcast programs – you don't need a room full of expensive equipment (left). Plus: we test the affordable new kit that could bring video editing to *your* Desktop!

Plus

- **The fantastic new portable PowerBook 1400 range from Apple – more power, more features (including "hot-swappable" CD-ROM drives), amazingly affordable prices! We can finally reveal all – next issue!**
- **Not a laser printer, not quite an inkjet – how does the new ALPS "dry ink" printer shape up?**
- **The first Mac compatible from Motorola arrives in the UK, and we put it to the test.**
- ***3D World 2.0* – an inexpensive first step into the world of 3D art on your Mac?**
- **Software for adding effects to your digital video – and your digital audio!**
- **Authoritative reviews of the latest multimedia and games, including *The Way Things Work 2.0, Worms, Warcraft 2* and *3D Ultra Pinball***
- **The definitive Buyer's Guide to Mac products worth buying, including the best second-hand Mac market there is; your Mac problems solved by our experts; the latest news, reviews and practical how-to's covering just about everything you do with your Mac!**

MacGamer

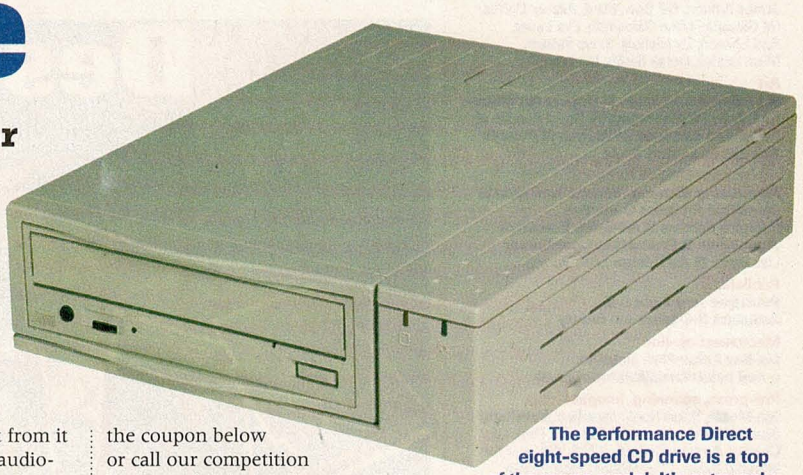
Free with MACFORMAT 45, the latest 32-page MACGAMER supplement brings you all the latest news and gossip from the Mac gaming scene. Find out what you'll be playing over Christmas and into 1997, including striking sports titles and top role-playing games.



MACFORMAT 45 goes on sale on Thursday 21 November. Reserve your copy with your newsagent now, or see page 99 for our special subscription offers

Win an eight-speed CD drive

For today's games, multimedia or just efficient data transfer, you need a faster CD-ROM drive. We have three great eight-speed drives, worth £770, to be won, courtesy of Performance Direct.



The Performance Direct eight-speed CD drive is a top of the range model. It's extremely speedy and versatile, and also includes an audio CD player utility.

With just about every kind of software coming on CD-ROM these days, from games and multimedia titles to word processors, a CD drive is an absolute must – and not just any old CD drive will do. While a quad-speed or slower drive might just cope with the rigours of everyday uses, let's be honest here. Rich, detailed, unpixellated full-motion video running at 30 frames per second ain't going to happen on your Mac unless you've got a drive that can really shift that data. Today, it's just *got* to be an eight-speed.

Performance Direct's eight-speed CD drive is an extremely speedy drive and includes a wealth of useful features. As well as coming ready supplied with all the cables you'll need to connect it to your Mac, it has two 50-pin SCSI connectors on the rear, a SCSI selector and a stereo audio-out port to connect the drive to your stereo, enabling you to get the best from it when you're using it as an audio-CD player. There's also a headphone socket for more private listening if you prefer, and all the important features – eject button, volume control, power on/off switch – are easily accessible.

performance direct

You also get some excellent software with your Performance Direct CD drive, including an *Audio CD Player* utility and CharisMac's *CD-ROM Utility*, a driver Extension. The Control Panel provided with *CD-ROM Utility* enables you to customise your drive to play different types of CD too. What's more, thanks to a customised "directory cache", the speed at which you can mount CDs on your Desktop is significantly increased over older models.

The Performance Direct eight-speed CD-ROM drive sells for £258, but you could win one of these superb drives simply by answering our three questions. Then, mail us the coupon below or call our competition hotline. The closing date for entries is Friday 29 November 1996.

The Questions

1. An eight-speed CD-ROM drive is so called because:
(a) It can play CDs at any of eight speeds, from "normal" to "very fast forward"
(b) You can fit the film *Speed* eight times on one CD
(c) Its data transfer rate is eight times that of the first generation of CD drives

2. How fast *is* eight-speed then?
(a) 150K per second
(b) 300K per second
(c) 1.2Mb a second

3. Which of the following does the Performance Direct eight-speed CD drive *not* offer?
(a) *Audio CD Player* utility
(b) Built-in tea-making facilities
(c) Customised directory cache

The rules

1. You must send us your entry by midnight on Friday 29 November.
2. Employees of Performance Direct, Future Publishing and associated companies, and their agents, together with their families, are not eligible to enter.
3. Multiple entries are not allowed.
4. The editor's decision is final, no correspondence will be entered into and there are no cash alternatives.
5. No entries will be accepted unless directed to the phone number or address listed below. **MF**

How to enter

1. Post the coupon at left (or a photocopy) to:

Performance Direct Competition, MACFORMAT, PO Box 700, Wellingborough NN8 1CL

2. Alternatively, dial the Performance Direct Competition Hotline:

0891 789 381

(The lines are open 24 hours a day, and your call should take no longer than three minutes. Calls are charged at 45p per minute cheap rate and 50p at all other times. You will have the opportunity to opt out from having your name included on a mailing list.)

Send this coupon (or a copy) to: Performance Direct Competition, MACFORMAT, PO Box 700, Wellingborough NN8 1CL

Title ..... **First name** .....

Surname .....

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Daytime telephone .....

Date of birth ..... **Sex:** .....

Mag code: MCF

Your answers

1 (circle one) **(a)** **(b)** **(c)**

2 (circle one) **(a)** **(b)** **(c)**

3 (circle one) **(a)** **(b)** **(c)**

To help us improve the magazine, please answer the questions below. You will be entered into the competition even if you choose not to answer them.

Do you already subscribe to MACFORMAT? ❑ Yes ❑ No
Where do you use a Mac most often? ❑ Home ❑ Work
Have you heard of Performance Direct before? ❑ Yes ❑ No

Your answers to the above questions will be used by Future Publishing for internal marketing purposes. All information will be treated under the terms of the Data Protection Act. Tick here if you do not wish to receive details of other offers from Future Publishing or other carefully selected companies. ❑

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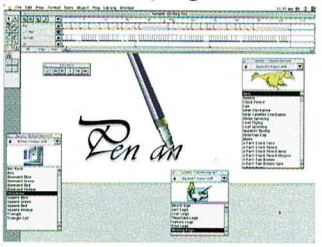

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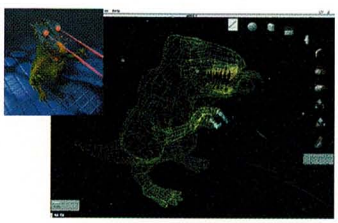

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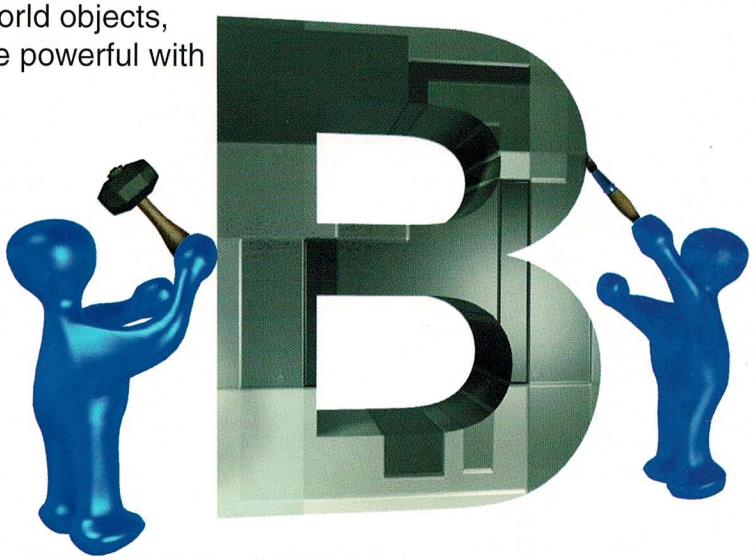

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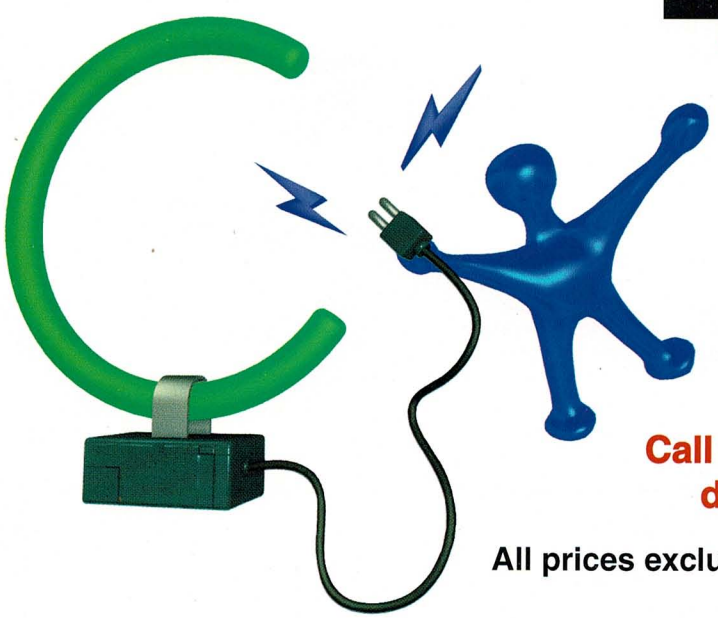

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